
DEPARTMENT OF PUBLIC WORKS

ANNUAL REPORT

2005

**CITY OF HARRISBURG
COMMONWEALTH OF PENNSYLVANIA**

CITY OF HARRISBURG
DEPARTMENT OF PUBLIC WORKS
2005
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CITY OF HARRISBURG
DEPARTMENT OF PUBLIC WORKS
2005

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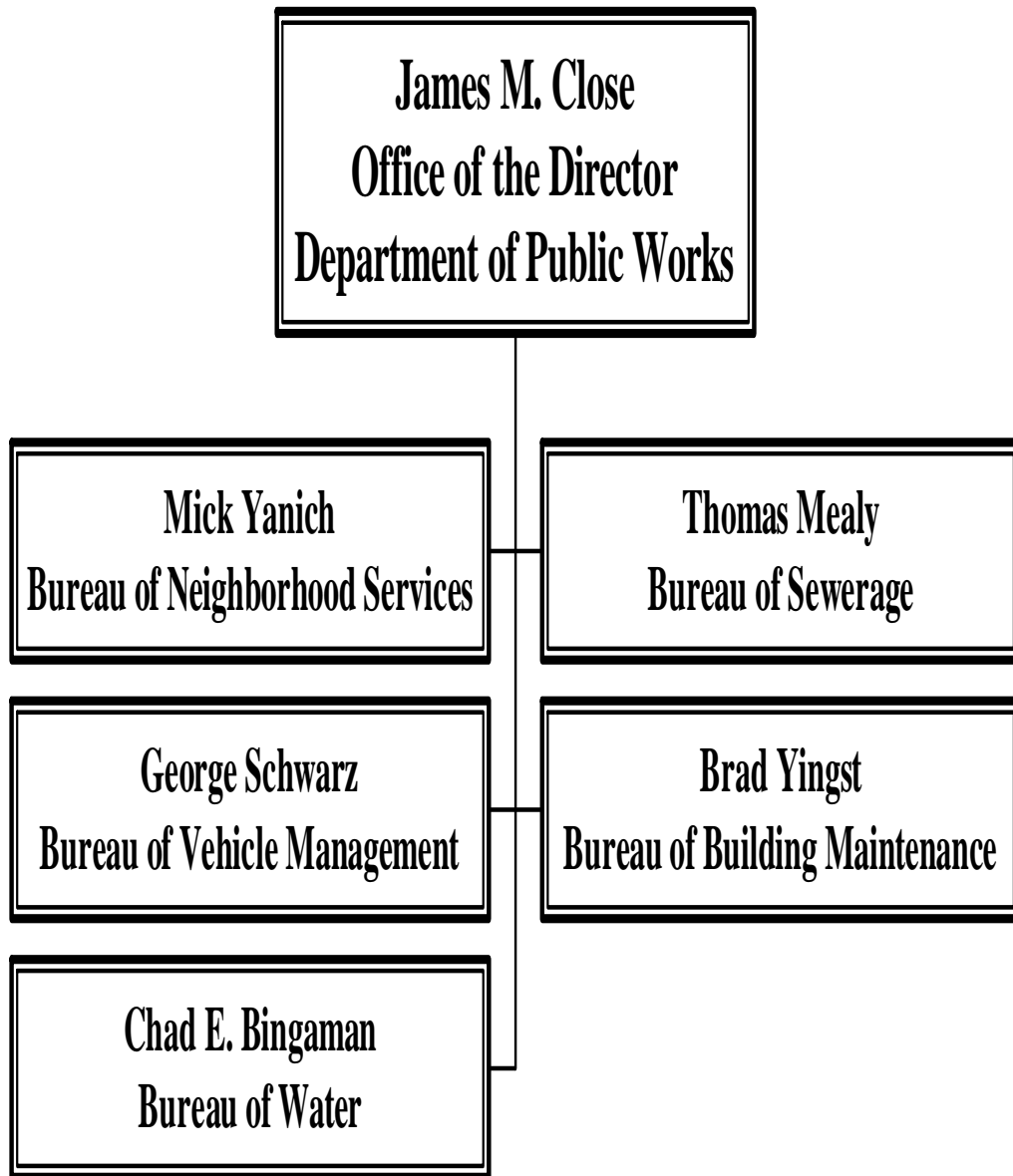
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CITY OF HARRISBURG

DEPARTMENT OF PUBLIC WORKS

ORGANIZATIONAL CHART



BUREAU OF NEIGHBORHOOD SERVICES

MICHAEL T. YANICH – DIRECTOR
DENNIS C. HOWE – DEPUTY DIRECTOR
AARON K. JOHNSON – DEPUTY DIRECTOR

Barricades

Barricades are distributed throughout the City for various social events and special City events. In 2005 a total of 1,406 barricades were distributed for 148 different events. The amount of barricades and events per month are listed below:

Month	Sets of Barricades	Events
January	14	3
February	40	4
March	66	5
April	77	11
May	84	6
June	152	11
July	283	26
August	227	20
September	186	24
October	111	22
November	101	13
December	65	3

Bulk for Charge

In 2005 the Bureau removed bulk items from residents for a minimum charge per item. This program served a two-fold purpose. First it gave the residents a means of getting rid of unwanted bulk items and second it somewhat slowed the illegal dumping of bulk items throughout the City. \$7,470.00 was collected during the year. The dollar amount of revenue produced by month is listed below:

January	\$ 700.00
February	\$ 280.00
March	\$ 340.00
April	\$1,435.00
May	\$ 630.00
June	\$ 740.00
July	\$ 770.00
August	\$ 410.00
September	\$ 425.00
October	\$ 917.00
November	\$ 345.00
December	\$ 478.00

Demolition

48 properties were demolished in 2005. The Demolition crew was needed on 37 different shifts for various special assignments, such as 17 shifts for snow fighting, 8 shifts for wind, and storm damage, and 12 shifts for leaf collection. The locations by month are listed below:

January—1524 N. 5th / 1425 ½ Williams

February—0

March—106 & 108 Linden

April—104&105 Balm/105, 109, 113, 115, 117 117 ½, 119,
119 ½ & 121 Linden/1940 Green

May—2001 & 2003 Green /1430 N. 6th St. Zommit Cleaners)

June—1226&128 Christian/ 1623, 1625 & 1627 Regina/ 1508 Regina

July—2421 & 2423 N. 6th / 2429 & 2431 N. 6th

August—2326 & 2328 Jefferson/408, 410 & 412 Woodbine
14 N. 15th/24 & 26 N. 17th

September—47 & 49Balm/171 Chayne/1521&1523 Regina

October—39, 41, 43 & 45 N. 14th

November—1525 & 1527 Regina

December—None

Illegal Bulk

Illegal Bulk items are collected throughout the year from streets, alleys, or anywhere else that people decide to dump bulk items to avoid the cost of disposing of them. A clam truck or a front-end loader with 5-ton dump trucks is used to pick these items up. Total for the year 413.20 tons was collected in 97 workdays. The following list is of the tons collected by month:

January	28.06
February	38.02
March	40.86
April	52.12
May	46.47
June	49.95
July	50.06
August	31.19
September	38.35
October	10.98
November	17.49
December	9.65

Potholes

Potholes are filled throughout the year in all areas of the City. Potholes are located by daily observations and phone in complaints. We assign a two-man crew with shovels, rakes, and a tamper to compact the asphalt into the holes. Potholes were filled on 72 days in 2005 using 93.52 tons of asphalt. The following list is of the days scheduled per month and tonnage of asphalt:

Month	Days	Tons
January	3	2.00
February	9	13.40
March	10	13.07
April	11	16.91
May	4	6.97
June	9	7.90
July	11	12.51
August	6	7.08
September	7	10.34
October	1	1.54
November	0	0
December	1	1.80

Street Cleaning

Street cleaning is done year round and includes street sweeping, salting and plowing, and leaf removal. In 2005 282.51 tons of leaves were collected and 1,375.78 tons of street sweeping debris was collected. Seventeen shifts were needed for salting and plowing to combat 26.6 inches of snow between January and February. The following list is of the street sweeping debris and leaves collected in tons by month:

January	67.46 tons	0 leaves
February	238.775 tons	0 leaves
March	253.60 tons	0 leaves
April	113.625 tons	0 leaves
May	86.54 tons	0 leaves
June	57.16 tons	0 leaves
July	53.23 tons	0 leaves
August	47.25 tons	0 leaves
September	54.66 tons	0 leaves
October	122.39 tons	22.28 tons/leaves
November	169.685 tons	227.715 tons/leaves
December	111.385 tons	32.515 tons leaves

Christmas Trees

904 Christmas trees were collected from residents in January of 2005. The trees are collected by two-man crews and taken to the salt pile area at the Advanced Wastewater Treatment plant, where the Parks Maintenance crews chip them up for mulch.

Tire Harvest

To alleviate West Nile Virus concerns the Bureau did a tire harvest on two dates in March. The two-man crews in small dump trucks collected tires from alleys, lots, and anywhere else we could find them. We collected enough tires to fill two whole Tractor Trailers, which were then driven to a recycling plant up the river in Liverpool.

Special Cleanups

The Bureau performed three special cleanups in 2005. In January on the 11th 1 man with a clam/truck collected 11.48 tons from a neighborhood cleanup by the Community Action Commission.

On April 17th we collected 11.45 tons from another cleanup by the Community Action Commission.

Finally, on August 20th in cooperation with a group of college students from Messiah College we did a cleanup in the 1400 blocks of Market and Regina Streets. 3.5 tons of debris was removed.

Flood Cleanup

The bureau assisted with flood cleanup on City Island in preparation of opening day of baseball for the Senators in April. Six 5-ton dump trucks of debris were removed from the parking areas and roadway surfaces around the stadiums.

Snowstorms

In the first two months of 2005 we had to deal with 26.6 inches of snow from various storms. The largest of the storms on the 20th of January dumped 8.1 inches. In February we received 17.1 inches of snow with 7.00 inches falling on the 22nd. Twelve point two inches of snow fell on the City in December with the largest amount of 8.0 inches coming on the 9th of the month. Salt and plow trucks were busy in the street cleaning areas the balance of the month to try to plow back to the curb lines where no cars were parked. The very cold temperatures at night made it harder with the thaw and re-freeze every night. Over two hundred tons of salt and anti-skid material was used in the month.

Televised Sewers

The Bureau televised 10 Sanitary Sewers in 2005. The following list of lines televised by month.

Month	Location	Cause
April	Front & Paxton	Sinkhole in Riverfront Park
May	315 S. 15 th 54 Balm	Sinkhole Problem in main sewer
July	2735 N. 4 th	Lateral problem
August	2100 Block of Turner Alley	No problem in city line
October	1400 Block of Market 200 Block of Muench	Condition for expansion Condition of line
November	1130 Herr Street	Condition of line
December	1100 S. Cameron 2 nd & Walnut	Back-up in steam vault Sinkhole

Sanitary Sewers

The Sanitary Sewer System is checked on a daily basis to keep water flowing throughout the main lines in the system. The following list is of the manholes that needed special attention during the year either by adding chemicals to break up grease or other solids, or using a long pole to move paper back into the main flow channels:

7 th and Antoine –	14 times	3 rd and Wiconisco –	13 times
Hale and Rudy –	13 times	29 th and Heather –	13 times
385 Yew –	13 times	5 th and Peffer –	12 times
2264 Kensington –	12 times	Carey and Market –	14 times
2972 Heather –	14 times	2233 Kensington –	12 times
Thomas and Market –	14 times	19 th and Primrose –	12 times
22 nd and Kensington –	12 times	20 th and Derry –	10 times
Goodyear and Knox –	12 times	2230 Green –	12 times
2737 N. 4 th –	12 times	640 S. 25 th -	11 times
Jefferson and Woodland –	12 times	5 th and Antoine –	12 times
2230 Kensington –	12 times	2964 Heather –	12 times
2734 Reel –	12 times	Dunkle and Derry –	12 times
17 th and Revere –	13 times	Waldo and Radnor –	14 times
2600 block of Green –	14 times	17 th and Hunter –	12 times
2500 block of Green –	14 times	Cameron and Elliot -	6 times
2 nd and Vine –	12 times	15 th and Liberty –	9 times
Croyden and Wyatt –	12 times	19 th and Mulberry –	12 times
Turner and Emerald –	13 times	2200 block of Swatara –	8 times
Hudson and Pemberton –	8 times	21 st and Chestnut –	6 times
17 th and Putnam –	6 times	17 th and Sumner –	4 times
17 th and Boas –	3 times	700 Melrose –	3 times
900 block of Norwood –	1 time	15 th and Bypass –	8 times
22 nd and Chestnut –	3 times	Rolleston and Pemberton –	3 times
5 th and Woodbine –	3 times	4 th and Woodbine –	3 times
1100 block of Herr –	5 times	2700 block of Green –	3 times

Sanitary Sewers cleaned by the Vactor

January – 2366 Berryhill/2500 block of Green/2237 Adrian

February – 372 Wyatt/2414 Berryhill

March – 2543 N. 4th/1206 S. 18th/455 Hale/1224 S. 18th/ 1700 Green
1400 Market

April - 1115 S. 17th/1206 S. 18th/25th & Woodlawn/2600 Waldo
2600 Jefferson/2700 Rudy/2630 N. 3rd/1138 S. 18th/2200 Derry

May - 385 Yew/29th & Rudy/1636 N. 6th/381 Wyatt/2400 Kensington
17th & Herr/1945 Swatara/2966 Wilson Parkway/809 N. 18th

June – 1206 S. 18th/2454 N. 6th/2405 Berryhill/25th & Rudy/1400 Wyeth
2640 N. 3rd

July – 1206 S. 18th/718 S. 25th/13th & Haehnlen/927 s. 17th/2500 N. 2nd
2500 Green/2600 Green/2700 Green

August – 1206 S. 18th /2600 N. 3rd /25th & Woodlawn/385 Yew/603 Forest
2100 Turner/3317 N. 3rd/17th & Putnam

September – 1206 S. 18th/2960 Green/385 Wyatt

October – 1400 Market/200 Muench/1845 Spencer

November – 1206 S. 18th/1130 Herr/25th & Woodlawn/2600 N. 3rd
2152 Kensington/Pennwood & Angenese

December – 1206 S. 18th/1100 S. Cameron/1625 Herr

Trash Collection

The Sanitation Division collects Trash and Recycling throughout the year. The following list is of the Trash, Recycling, and Sidewalk Receptacles emptied by tons:

Month	Trash	Recycling	Sidewalk Receptacles
January	2,219.42	124.16	5.34
February	2,066.01	124.20	5.34
March	2,246.19	138.20	5.34
April	2,580.59	140.22	5.42
May	2,478.77	145.95	5.42
June	2,679.99	148.26	5.42
July	2,609.31	155.17	5.68
August	2,677.79	154.86	5.68
September	2,500.63	144.17	5.42
October	2,550.09	137.59	5.42
November	2,475.94	138.08	5.42
December	2,409.06	141.15	5.42
Totals	29,493.79	1,692.01	65.32

VMC CHARGES

MONTH	FUEL	OIL	PARTS	TIRES	LABOR	LUBE
January	0	0	0	0	0	0
February	0	0	0	0	0	0
March	0	0	0	0	0	0
April	9,939.93	239.75	5,082.97	1,766.28	6,572.75	0
May	10,522.41	343.10	9,243.86	1,576.07	11,097.09	16.00
June	10,348.71	275.25	18,677.19	2,235.66	12,016.25	112.00
July	9,024.53	234.25	2,952.80	997.03	4,838.75	48.00
August	11,173.12	61.63	5,628.10	7,256.60	6,496.72	56.00
September	13,195.83	1,312.95	17,610.99	627.92	17,652.00	56.00
October	12,528.50	1,169.37	17,810.90	620.76	15,120.00	22.75
November	12,131.83	13.77	8,155.77	189.00	6,652.00	64.00
December	12,854.78	280.75	11,381.22	2,290.67	12,447.61	16.00
GRAND TOTAL	313,083.17					

TRAINING

The following list is of the Safety Training that the Bureau participated in during 2005:

January – None

February 12 – Hazard Communication & Right to know – 8 men

March 9 – Trenching and Confined Space – Construction

April 29 – Slips, Trips & Falls – 17 members of C.S.

May 30 – Fire Extinguisher – 16 members of C.S.

June 21 – Defensive Driving – All from C.S.

July 29 – Tool Safety Training – Construction & Demolition Crews 8 men

August – None

September 30 – Hazard Communication Training – 19 C.S.

October, November & December -None

Storm Inlets Repaired

The following list is of the Storm Inlets that were repaired throughout the year:

April – 2nd & Vine, 325 Royal Terrace, Hale & Rudy, 19th & Zarker (2), 7th & Basin, 19th & Holly, 18th & Regina, 2420 Mercer, Whitehall & Regina, 21st & Chestnut

May – Chestnut & Evergreen (2), 1508 S. 13th, 19th & Zarker (2), 5th & Woodbine, 7th & Emerald, 1700 Brookwood, Susquehanna & Forster, Susquehanna & Herr, 15th & North, 18th & Park, 13th & Hanover, 23rd & Market, 4th & Clinton

June – 13th & State, Green & Edward, 17th & Revere, Hummel & Swatara, Green & Vaughn, Front & Cumberland, Front & Verbeke, Susquehanna & Reily, 7th & Basin, Pear & Grand, 3rd & Pine

July – 13th & Reese, Susquehanna & Clinton (2), 26th & Brookwood, 20th & Whitehall, 18th & Paxton, 21st & Chestnut, 7th & Clinton, 2nd & Blackberry, 19th & Forster

August – 7th & Herr, Salmon & Hemlock, 18th & Chestnut, 1501 Sycamore

September – 1433 Market, 15th & Compass

Storm Inlets Cleaned by Vactor

February - River & Locust.

March – 7th & Antoine, City Island (5), 6th & Verbeke (3), 1536 Thompson, 17th & Paxton, 432 Crescent, 3rd & Vaughn, 6th & Graham, 6th & Alricks, 2529 N. 6th.

April – Hudson & Paxton (2), Hillside & Rudy, Front & Tuscarora, Front & Nagle (2), 14th & Swatara, 17th & Sycamore, 18th & State, 1220 Capital, 1186 Bailey, Boas & Grand, 2nd & Schuylkill, 1500 Brookwood, 1200 Market (2), Northfield & Southfield, 317 S. Front Norwood & Brookwood (2), 16th & Catherine (2), 1901 Holly, 19th & Derry, Hale & Rudy, 19th & Zarker (2), 1830 Chestnut, 7th & Maclay, 7th From Herr to Reily (10), 2420 Mercer, Harbor Town (2), 21st & Chestnut

May – Chestnut & Evergreen (2), 2nd & Mary, 1508 S. 13th, 17th & Berryhill, 15th & North, 18th & Park, 19th & Helen, Pemberton & Cona

June – 19th & York (2), 19th & Forster, Green & Division, Front & Cumberland, Green & Vaughn, Harris & Wallace, Front & Verbeke, Susquehanna & Reily, Reel & Schuylkill, 5th & Schuylkill, Penn & Grand, Mt. Pleasant & Honey

July – 7th & Clinton, Front & Mary, 19th & Brookwood, 19th & Greenwood, 19th & Brown, Jefferson & Emerald, Jefferson & Curtin, 529 Camp, 542 Seneca, Green & Schuylkill, 6th & Graham, Green & Edward, Turner & Emerald, 2nd & Chestnut, 7th & Ivy, Jefferson & Division, Susquehanna & Calder, 2nd & Pfeffer, 320 Pfeffer, 2nd & Market (2), 1200 N. 15th, 6th & Schuylkill

August – 7th & Herr, Salmon & Hemlock, 18th & Chestnut, 1501 Sycamore

September – 18th & Bellevue (2), 13th & Chestnut, 13th & Haehnlen, 17th & Ethel, 16th & Forster (4), 121 Summit (2), 17th & Revere (4), Hummel & Hunter (2), Chestnut & Honey

October – 17th & Forster, 17th & Boas

November – 19th & Paxton, 18th & Derry, 3rd & Vaughn, Green & Vaughn, Hummel & Berryhill

Sinkholes

The following list is of the Sinkholes repaired in 2005 and the materials needed to restore the road surfaces:

Month	Location	Tons of Stone	Tons of Asphalt
April	Riverfront Park 3200 block	1.04	.25
	Front & Geiger	12.05	3.99
	2517 N. 2 nd	34.00	6.89
	5 th & Muench	8.72	1.50
June	1400 Shoop	42.78	21.27
	1930 Bellevue	8.15	2.69
	900 N. 12 th	4.00	3.10
	Shanklin Alley	1.00	3.01
	Block Alley	0	3.07
	300 S. River	3.51	2.57
	1700 Logan	23.87	11.16
	Riverboat Dock	0	2.06
	Melrose & Woodlawn	6.06	4.02
	1829 Park	4.43	4.09
	18 th & Chestnut	7.95	3.61
July	1400 Block Kittatinny	11.28	4.60
	309 S. 14 th	6.10	3.62
	1613 Susquehanna	8.00	5.52
	Susquehanna & Schuylkill	6.85	6.07
	1253 Kittatinny	6.00	8.11
August	Boas & Bartine	10.25	3.04
	3 rd & Blackberry	1.00	1.04
September	Salmon & Hemlock	1.98	2.05
October	1930 Susquehanna	5.98	1.05

Miscellaneous

February – Replaced a storm damaged sidewalk from last years' tornado at the corner of 14th & Berryhill Streets.

March – City Island, flood preparations, removed electrical services and sandbagged around Commerce Bank Park outfield fence

April – Repaired a damaged sidewalk at 2nd & Vine caused by a large tree fall. Flood cleanup at City Island, in preparations of opening day for the Senators.

May – Repaired oil separator at the Vehicle Maintenance Center. Oil & sludge were flowing into the creek down in the Green Belt. Repaired curbing that was damaged during snow plowing in front of 3012 Meadowlark Place.

July – Removed 13.69 tons of debris and bulk items from Pool number 2 in Hall Manor.

September – In cooperation with the Water Bureau, we did a final street cut restoration from a new water main that was installed in the 2900 and 3000 blocks of North 7th Street. We hauled 15 loads of asphalt in our dump trucks.

Monthly Savings

Month	Eliminated Mandatory Overtime	Suspensions	Eliminated Routes
January	2,130.48	6 days 747.90	0
February	2,130.48	9 days 1,121.85	0
March	1,936.80	3 days 373.85	0
April	0	0	0
May	2,130.48	1 day 145.04	0
June	0	0	0
July	0	0	8,980.95
August	0	0	8,230.09
September	0	0	7,514.43
October	0	0	7,156.60
November	0	0	6,798.77
December	0	0	7,156.60
TOTALS	8,328.24	2,388.64	45,837.44
GRAND TOTAL	56,554.32		

Neighborhood Services

Traffic Division

No	Parks And Recreation	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1	River Front Park (Hrs.)				2	1	16	1						20
2	City Island (Hrs.)	5	20	673	379	51	67	8	122		25	23		1373
3	Reservoir Park (Hrs.)					2	2		6		3			13
4	Kunkle Plaza (Hrs.)					2								2
5	Walnut Street Bridge (Hrs.)			64	6		60			28				158
6	Banner Installation / Removal (Hrs.)		10	45	41	2	3	2	2	25		16	1	147
7	Accent / Tree Lighting (Hrs.)	1									63	85		149
8	Christmas Decorations (Hrs.)	69									77	197	26	369
9	Miscellaneous (Hrs.)	6	2				11		2	16	29			66
10	Sunken Gardens / Italian Lake (Hrs.)		1		2	2	32	1						38
11	Pool # 1 & 2 (Hrs.)						36	15		3	1			55
12	Various Parks (Hrs.)						2		16	5	4			27
13	Special Events (Hrs.)	16				109	190	94	109	225	14	3	17	777

No	Traffic Pavement Markings-Inlaid	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1	Stop Bars (LF)													0
2	Lain Arrows (EA.)													0
3	Crosswalks (LF)													0
4	Long Line (LF)													0

No	Traffic Pavement Markings-Thermoplastic	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1	Stop Bars (LF) 12"													0
2	Stop Bars (LF) 24"					185	87							272
3	Lane Arrows (LF)						12							12
4	Crosswalks (LF) 6"													0
5	Crosswalks (LF) 8"					787	534							1321
6	Long Line (LF)													0
7	Pavement Marking (Hrs)					132	123							255

Neighborhood Services

Traffic Division

No	Traffic Pavement Markings-Paint	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1	Parking Stalls (LF)													0

No	Parks And Recreation	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1	Public Works Office (Hrs.)	18												18
2	City Services (Hrs.)			4	17						15	23	1	60
3	VMC (Hrs.)	60	135	88	35			3	4	5				330
4	Sanitation (Hrs.)			17				32		9		24	40	122
5	Water (Hrs.)	4												4
6	Steam Plant (Hrs.)		5											5
7	Sewerage (Hrs.)							1						1
8	City Hall Building Maintenance (Hrs.)						11			17	7	1		36
9	Data Processing/Wireless Comm. (Hrs)						4		9	5				18
10	Comm. Center Alarm System (Hrs.)	15	6	4		2	22	3		17	13			82
11	Police Bureau (Hrs.)				1									1
12	Fire Bureau (Hrs.)	1			1									2
13	Fire Museum (Hrs.)													0
14	National Civil War Museum (Hrs.)						10							10
15	Engineering (Hrs.)				1							4	5	10
16	Directional Signs (Hrs.)				1					20				21
17	Parking Authority (Hrs.)													0
18	Special Project Signs (Hrs.)													0
19	Flood Prep/Damage (Hrs.)	13	19	23	99	3		1		8				166

Neighborhood Services

Traffic Division

No	Parks And Recreation	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1	Stop Signs	3	5	4	9	9	1		8	9	7	6	3	64
2	Stop / Signal Ahead Signs													0
3	One Way Signs	5	2	2	17	8			3	3	7		5	52
4	No Parking Any Time Signs	15	2	3	25	34	21		27	19	18	1	2	167
5	Speed Limit Signs				2	3			7	11				23
6	Handicap Parking Signs	5	4	9	37	9	3		5	5	1		1	79
7	Loading Zone Signs	6						2	2	8	3			21
8	Street Cleaning Signs	16			29	64	7	1	33	30	5			185
9	Street Name Signs	122	32	48	42	32			8	4	124	4		416
10	Snow Emergency Signs	4				4	3			1				12
11	Drug Signs									1				1
12	Adopt-A-Block Signs (Lot)													0
13	Do Not Enter Signs										1			1
14	Permit Parking Signs	72	81		17	1	2				1			174
15	Watch Children Signs			1			2		2		4			9
16	Yield Signs					2			1					3
17	Right/Left Lane Must Turn Signs													0
18	No Right/Left Turn Signs					1								1
19	Playground Signs													0
20	Slow Signs													0
21	School Crossing Signs	1			1					1				3
22	School Signs					3							1	4
23	All Traffic Must Turn Right/Left													0
24	Crime Watch Signs							11	4	3	4			22
25	Signs for Parks & Rec.					5	9							14
26	Signs for Public Works													0
27	Special Projects Signs													0
28	Truck Signs	1							4					5
29	3-Way/4-Way Signs					4								4
30	Ped Signs													0
31	Fine Signs for H/P Signs	2	2	4	15	3	1		1	2			1	31
32	Miscellaneous Signs	3		1	1			2	1	1				9
33	No Outlet Signs													0
34	Tow-Away-Zone Signs	1	3			2					5			11
35	Arrow Signs	15								18	16		2	51
36	No Turn Signs													0
37	No U-Turn Signs													0
38	Keep Right/Left Signs													0
39	Signs for City Hall													0
40	Signs for Police / Fire													0
41	Signs for Water Dept													0
42	Signs for AWTF													0
43	Signs for Steam Plant													0
44	N.C.W.M. Signs													0
45	Way Finder Signs													0

Neighborhood Services

Traffic Division

No	Office/Other	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1	Administrative Division (Hrs.)	38	16	32	24	13	22	15	28	23	7	9	11	238
2	Shop Work (Hrs.)	40	11	29	12	33	23	42	20	24	19	25	7	285
3	Install & Repair Radios (Hrs.)	7	7		1	3	6	3	6	5	1			39
4	PA-One-Call Notifications	127	140	177	212	261	283	185	111	267	185	156	106	2210
5	PA-One-Call Locates	7	38	21	8	4	12	10	17	1	20	31	31	200
6	Vehicle Preventive Maintenance (Hrs.)													0
7	Building Maintenance (Hrs.)	2	33	4	2									41
8	Snow Removal (Hrs.)	10	41	25									24	100
9	Public Works Misc. (Hrs.)	59	4	30	14	15	13		20	9	20	6	12	202
10	Safety Committee (Hrs.)													0

No	Traffic Signals	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1	Emergency Call Outs	4	1	4	1	5	2	7	5	5	1	4	2	41
2	Preventive Maintenance (Hrs.)												56	56
3	Lamp Replacements (Hrs.)	2	3	2	10	12	24	19	18	26	12	9	1	138
4	Street Repairs (Hrs.)	23	15	59	20	51	51	98	23	52	78	40	107	617
5	Cable Troubleshooting (Hrs.)													0
6	Bench Repairs (Hrs.)	9		4				14	11	10	5		30	83
7	Signal Programming (Hrs.)	1				2				4				7
8	Signal Design/Inspection (Hrs.)	1	4		3		7	8		7			10	40
9	Miscellaneous (Hrs.)	6	16	18	14	22	12	19		16	7	5	24	159
10	Relamped Intersections (Hrs.)									127	38	11	67	243
11	L. E. D. Installation (Hrs.)	118	225		152	190	49	18		15				767

No	Signs	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1	Fabricated	287	88	266	11	220	63	114	143	128	81		2	1403
2	Repaired	72	25	37	41	30	19	19	44	30	20	10	29	376
3	Installed	148	43	53	96	64	18	16	18	28	131	3	3	621
4	Replaced	113	86	31	106	129	40	91	101	92	65	9	12	875
5	Removed	98	86	29	53	32	21	44	49	32	60	14	70	588
6	Poles Used	41	18	31	51	23	7	7	12	8	32	3	12	245
7	Night Shift (Hrs.)													0

BUREAU OF BUILDING MAINTENANCE

BRADLEY A. YINGST – DIRECTOR

GENERAL

The Bureau of Building Maintenance consists of a bureau director and eight custodians. (Three on loan from the incinerator but returned to the incinerator in November 2005). Duties for employees of this bureau are as follows:

- Three custodians servicing the Public Safety Building.
- Three custodians servicing the City Government Building.
- Two custodians working nights and weekend shifts.

Two major duties each day, completed by six persons, are:

- The cleaning of 29 rest rooms.
- The emptying of 406 trash cans.
 1. The 29 rest rooms contain the following:

Toilets	29	Towel Dispensers	29
Toilet Cubicles	49	Paper Holders	49
Urinals	24	Soap Machines	29
Wash Basins	43	Ash Trays	29
Mirrors	43	Ceiling Vents	29

The total floor area to mop is 3,066 square feet, an area 10 feet wide by 306 feet long, or roughly the length of River Alley from PNI to Walnut Street.

All these items are checked, cleaned and serviced once daily.

2. The 406 trashcans can be related to as 30 trips to the trash room.
Nineteen of those trips are from a distance of 1/2 block away. Time must also be used to clean up the trash collection and staging areas.

One half hour has been given to clean each rest room. This means there are 14.50 hours per day used to clean rest rooms. This figure is divided by 4 persons for a time of 3.63 hours each.

With a high estimate of 6.50 actual accomplished working hours per person per day, there remains only 2.87 hours per person to empty 406 trashcans. If you multiply 2.87 hours by 4, you get 11.48 hours remaining per day. The 11.48 hours equal 689 minutes. Divide the 689 minutes by 406 trashcans and you get 1.70 minutes per can. That is 1.70 minutes to locate, empty each can, make thirty trips to the trash room and keep it clean at the end of the shift.

ADDITIONAL DAILY DUTIES

- The cleaning of 7 drinking water fountains.
- Dumping and wiping-out an estimated 200 ash trays.
- The cleaning of 4 office suite directories.
- The cleaning of 4 fire hose cabinets in the Public Safety Building.
- The cleaning of 5 glass doors in the Public Safety lobby.
- The cleaning of 2 information windows in the Public Safety lobby.
- The cleaning of 1 glass display case in the Public Safety lobby.
- The dumping and cleaning of 5 ash tray stands in the Public Safety Building.

WEEKLY DUTIES

- Sweep and mop 401 stair treads.
- Sweep an area of 4,742 square feet.
- Sweep and mop an area of 26,205 square feet, or an area equal to 60% of one acre. That is 3,945 feet more than the total space on which the Public Safety Building is constructed.
- Vacuum an area of 76,019 square feet, or an area equal to 1 3/4 acres.
- Clean and polish 22 elevator doors.
- Clean 8 shower stalls.
- Clean one 10-space shower stall and a drying off room.
- Clean a number of lock-up cells as needed.
- Replace 30 to 40 light tubes.
- Deliver and organize an inestimable amount of boxes.
- Rearrange and organize an inestimable amount of storage material and furniture.

Building Maintenance

- Decorate, tear down and organize at least one special event during the summer months.
- Run performance tests on emergency generators (three) each week.

MONTHLY DUTIES

- A floor area of 4,900 square feet is waxed.
- A floor area of 4 1,664 square feet, or 95% of an acre, is swept.
- 157 lockers are dusted and wiped down.
- An estimated 25 ceiling lights are cleaned.

DAILY DUTIES – SECOND SHIFT

- Lock-up both buildings. This task includes 49 doors.
- Dump and clean 14 ash tray stands.
- Clean 10 glass doors.
- Vacuum council chambers and caucus room, a total of 1,716 square feet.
- Dust and polish council desks and tables (10).
- Dust off and check council seating, a total of 94 theater arranged seats.
- Empty the trash in the mayor's suite. (7 cans).
- Clean two rest rooms containing the following:
 - Two toilets
 - Four wash basins
 - Four mirrors
 - One urinal
 - Two toilet cubicles
 - Two ceiling vents
 - Two toilet paper holders
 - Two soap machines
 - Two towel dispensers
 - Mopping two floors equaling 224 square feet

CITY OF HARRISBURG
BUREAU OF BUILDING MAINTENANCE

2005 Personnel Director

<u>Management Staff</u>	<u>Position</u>	<u>Employment Date</u>
Brad Yingst	Bureau Director	02/06/96

Permanent Bargaining Unit Employees

<u>Name</u>	<u>Position</u>	<u>Employment Date</u>
Frank Prunty	Maintenance Mech I	08/23/78
Wayne Pittman	Laborer II	10/15/74
Ngoan Le	Laborer II	11/25/91
Alfred Anderson	Laborer II	03/16/92
Sean Kline	Laborer II	10/03/95
Joanne Lewis	Secretary II	11/16/81

EXPENDITURE ANALYSIS DETAIL
2005 BUDGET
BUILDING MAINTENANCE
GENERAL FUND

Budget for 2005	
Personnel	\$377,929
Operating Expenses	\$792,285
Capital Outlay	\$164,481

ACCOMPLISHMENTS FOR 2005

- Built new counter and remodeled Night Court Suite
- Remodeled kitchenette and installed new carpet in Roll Call room
- Built cabinet and remodeled break room for Communication Center
- Painted stairwells in the Government Center (2) and Public Safety Building (3)
- Replaced stair trends north stairwell – Public Safety Building
- Painted third and fourth floor levels of atrium
- Replaced steam valve for hot water in the Public Safety Building
- Repaired roof leaks in the Public Safety Building and replaced damaged ceiling tile
- Replaced heat exchanges from air handling unit on the roof of the Public Safety Building
- Rebuilt sump pump for sewage discharge in the Government Center
- Replaced Pitney Bowes postage meter for greater reliability and customer charge-backs
- Duplication Center reassigned to Building Maintenance from Operations and Revenue

GOALS FOR 2006

- Improve work/break area in the Building Maintenance room
- Consolidate and better utilize storage space in both buildings
- Remodel entrance to the Law Bureau Suite
- Remodel offices in the Business Administration Suite
- Replace folding machine for utility billing inserts

BUREAU OF VEHICLE MANAGEMENT

GEORGE L. SCHWARTZ – DIRECTOR

HISTORICAL INFORMATION

The first known “Vehicle Repair Facility”, for the City, was located in close proximity to the “Farm Show Complex” on North Cameron Street. Housing either three or four mechanics the primary responsibility was to maintain and repair approximately twelve sanitation packers. The “Lead Mechanic’s name was Mr. Cassell.

In the early 1970’s, the now known “Public Works Complex”, was built. The enclosed area, with an address of 1690 South 19th Street, was built to garage equipment for the Sanitation and Incinerator Bureaus but was quickly converted to accommodate the three automotive technicians from the North Cameron Street location. The complex would later be expanded to additionally facilitate the Bureaus’ of City Services, Traffic Engineering, Shade Tree and Water. While some of these Offices and operations have since been relocated elsewhere in the City, or reorganized / consolidated and operated under the name of Bureau of Neighborhood Services, the Vehicle Maintenance Center remains at this location.

The complement of automotive technicians that were relocated to this location would rapidly increase in number. This increase in the number of employees prompted the additional responsibility of maintaining more of the City’s vehicles and equipment. At one time the Bureau’s organization included twenty-three employees, not including a management staff of two. The organization was then comprised of; a body shop with two employees, a refueling site with an employee to dispense fuel and wash vehicles, three custodians to care for the facility / grounds, two parts persons, three administrative / clerical staff and about twelve mechanics to maintain the fleet of unknown size (estimated at two hundred and fifty pieces). The management staff included a Bureau Director, Mr. Eugene Durham, and a Chief of Operations, Mr. Roger Roden. The Bureau was then known as the Bureau of Vehicle Maintenance. The total complement of employees peaked at about twenty-five in mid to late 1970’s.

In 1989, the City’s fleet was comprised of approximately two hundred and seventy seven known pieces of equipment. The Bureau had an employee complement, at that time, of sixteen. The Bureau’s organization included; a body shop with two employees, one parts person, one administrative assistant, one laborer, eleven technicians, and one management staff.

In 2001, the fleet consists of approximately four hundred and sixty pieces of equipment and continues to grow. It was supported with a staff of eleven, which includes one management employee. The Bureau was then divided into three divisions, the Administrative, Procurement and Supply, and Maintenance / Repair Divisions. The Maintenance / Repair Division has three units, the Light, Heavy, and Body Shop Units. In 2006, the fleet has increased in size to 465 units and Bureau has a compliment of ten employees and a management staff of one.

In December of 2002, and by Mayoral Executive Order #5, two major changes in the organization took place. The first, and the one which will impact most on operations, is that total fleet management control was delegated to this Bureau. The second, recognizing the bureau is responsible for more than just maintenance, was the formal name for the bureau was changed from the Bureau of Vehicle Maintenance to The Bureau of Vehicle Management.

BUREAU OF VEHICLE MANAGEMENT

GENERAL

MISSION STATEMENT; To aggressively continue being an asset to the City operations by properly maintaining the City's fleet in the highest state of readiness at the lowest possible cost, and to provide a cost savings City wide Fleet Administration Program.

This annual report is prepared for the purpose of furnishing information and statistics relative to the operations of the Bureau of Vehicle Management for the calendar / fiscal year of 2005.

The Bureau is directly responsible for the management of the City's vehicle and equipment fleet. This includes total fleet management, inclusive of preparing specifications, purchasing, equipment maintenance and repair, and disposal when it is determined that a unit is no longer serviceable. While on the surface this may appear to be a simple task, it is not. The logistics of such an undertaking requires dedicated, highly technical, and knowledgeable individuals able to perform all the related functions in this multi-faceted operation. Keeping current with the ever-changing vehicles, their components together with governmental mandates are some of the several major challenges facing all involved.

The Bureau, itself, is divided into 3 separate divisions. They are the Administrative Division, the Procurement and Supply Division and the Maintenance and Repair Division. The Maintenance and Repair Division, unlike the other 2 divisions, is separated into 3 units. They are; the Light Duty Unit staffed with 7 employees, the Heavy Duty Unit staffed with 1 employee, and the Sheet Metal Unit (body shop) staffed with 2 employees. The Procurement and Supply Unit and the Administrative Divisions are each staffed with 1 employee. As the names for these units imply, each unit is primarily responsible for the repairs to vehicles and related equipment. This however, should not indicate that each operates independent of the others. They are specifically organized to interact with each other and share the total workload, specializing in the type of work as their name implies.

While the Bureau continues to function efficiently, there is an ever-increasing amount of work contracted to outside vendors. At one time, the Bureau performed 95 to 98% of all work in-house. With the ever-aging and ever-increasing size of the fleet and the ever-decreasing size of the support staff, this number has been reduced to 75 to 80%. It has to be understood that at one time, 1988 in fact, the fleet consisted of approximately 275 pieces of equipment and had a complement of 16 union employees. Today the fleet consists of over 465 pieces of equipment and currently has a complement of ten union employees. The budget in 1988 was \$955,128.00, today it is in excess of \$2.6 million dollars.

2005 IN REVIEW

As always, the opening question was the weather kind to the south central Pennsylvania area? The answer, yes. The weather was kind to the area with snowfalls having only minimum accumulations, and none sufficient to cause any major concern. Only exception to this was the two storms in December of the year being reviewed.

The progress made by this Bureau during the calendar year 2005 is briefly reviewed in the following articles.

OPERATIONAL IMPROVEMENTS

Old News / New News, as always seems to be the Top News. The topic is the PACC (PA Capital City Equipment Procurement Contract). The program continues to grow with leaps and bounds, bringing much credit to the City.

Again, to briefly describe the program's success, as of this writing, over 2100 separate known purchases have occurred. The entities include the Commonwealth itself, many municipalities within Pennsylvania, and municipalities within the State of Maryland, Delaware, Connecticut and New York, Virginia and Washington State. Purchases are now being considered by two municipalities in the State of California. At the close of 2005, it is estimated that purchases using this contract have a dollar volume in excess of \$300 million dollars. Interesting enough, the growth of the program in 2004 was five times greater than the number of purchases for the first four years combined. In the calendar year 2004, there were exactly 400 transactions. In 2005, and at the writing of this report, there have been 594 transactions. This equates to a 49 percent increase in the number of transactions in 2005, when compared to 2004. It is estimated the program is responsible for a savings, to the participating entities, of 10 to 15%. Quickly calculated at 10 % savings, the program is responsible for the **saving** of taxpayer's funds **in excess of \$30 million dollars**. This is quite a feat for a City the size of Harrisburg. The use of the program has not diminished, in fact, purchases from the program continue to grow at a phenomenal rate.

Also, for 2005, the Commonwealth performed audits of the program. Thus far, a formal interim report has been received which outlines some minor areas the Commonwealth would like to see clarified. Overall however, it is the consensus that the program is very valuable and should continue.

It should be again properly noted with emphases that the program is widely recognized and respected by the purchasing entities of seven-plus states and major equipment manufacturers themselves. The program was recognized twice, once by the National Association of Fleet Administrators in 2002 when the "Larry Goill" Award was presented and then by the Commonwealth of Pennsylvania itself in April of 2004, when the Honorable Governor Edward Rendell presented the Government Excellence Award for the program and its innovative concept. Not bad to say the least, International and Gubernatorial reorganization. The way things look now, there is a possibility of more to come.

2005 IN REVIEW (continued)

RECOGNITION

In September of 2005, George Schwarz was presented the Fleet Manager of the Year Award by the American Public Works Association (APWA), at their International Congress held in Minneapolis, Minnesota. There are 67 chapters representing 26,000 members of the APWA in the United States and Canada, plus affiliated relationships with several foreign countries worldwide. Competition for the APWA national awards is an arduous process. The Fleet Manager of the Year award is based on a comprehensive set of criteria considering all aspects of fleet management, operations and vehicle / equipment maintenance. Innovation, planning, use of technology, cost savings, employee training, and safety are weighted factors in the selection process. For the Director of Fleet management of a City the size of Harrisburg to be recognized by his peers at the national level of such a large professional organization brings great credit to the City, the Vehicle Maintenance Center, and particularly George Schwarz.

FLEET MANAGEMENT

Recognizing that fleet operational expenses continue to grow, and that today the City has the largest fleet in its history, the Mayor, by 2002 Executive Order, made a command decision renaming the Bureau to "Vehicle Management" and directing this Bureau to be responsible for monitoring, controlling and otherwise managing the overall activities of the City's fleet.

This responsibility will require, because of increased budgetary constraints, the placement of more prudent practices for purchasing, maintenance, operations and management of the fleet.

With these major changes, the Bureau will play an intricate role in reviewing the overall operation of the fleet. This includes but is not limited to operational responsibility, standardization, rotation, life cycle costing, fleet reduction (without compromising agency operations), improved inventory control standards, and the review and coordination of all motorized / non-motorized acquisitions to name a few.

If, and when, fleet deficiencies are recognized, they will be communicated, together with the corrective action, which is to be implemented by the appropriate management personnel.

Most important the Bureau is aggressively pursuing "total automation". It was not long ago the Bureau received its first computer. Subsequently, the inventory of the fleet, its assignment and other very basic information about each piece was placed in a database. That was only the beginning. The automation being pursued will not only include the inventory of vehicles, but also the inventory of parts and supplies and the documentation of Bureau operations. Most important is the need for accountability and inventory control. Proven savings in this area alone could be documented like the discarding of obsolescence saving 30%, the reduction of on-hand quantities by 25% for a savings in excess of \$66,000.00 on an inventory valued at \$200,000.00, price comparison purchasing saving 5-10% on new purchases the capturing of warranty work saving 100% in real dollars, and the complete identification and documentation of inventory quality.

2005 IN REVIEW (continued)

With this writing it appears as though it is about to all come together or “gel”. In the latter portion of 2005, a purchase order was prepared and signed for the training on a “fleet management” software program. The training has begun, and only good things can evolve. The program, “Fleet Focus”, an internet based program, and will provide the management tool necessary to monitor and control the expenses to operate the fleet and associated programs. This is only the beginning. With this tool, vehicles, equipment, parts, supplies, and time will be accountable. The tracking of costs to operate a unit by miles, age, or for a specific period will be available. The replacement of the unit(s), when new units are purchased, costing the most to operate rather than the unit having the highest mileage will occur. Repeated repairs will become easy to recognize and appropriate action will be taken. And the list goes on and on and on. More benefits of the automation, as the program is formally put in place, will be outlined in future reports together with the action implemented and any savings sustained.

PRODUCTION

The enclosed chart denotes the production, for the Bureau, historically for an nine year period and for the calendar / fiscal year 2005. Production for the latest year is than compared directly against the preceding year. As depicted, the numbers of repairs (repair orders) for 2005 are slightly lower than 2004. This decrease can be attributed to two reasons. The first is the additional manpower that was detached from the Incinerator had completed their assignment and returned to their origin in very early September. These employees, while assigned for only a temporary period, had a serious impact on assisting with the reduction of this bureau’s work / work backlog. Their returning to their original assignment had just the opposite effect. The second reason is the continuation of the fleet to age. While the number of repairs (counted by the number of work orders issued) has declined, the total number of repairs, documented on each repair order, has increased. It has to be understood the increase in number of repairs documented on a repair order and the time that is exhausted to complete those repairs increases with the age and overall condition of the unit being repaired. This fact a skews the production numbers which are based only, on the number of repair orders issued.

As always, the work backlog caused by a reduced workforce can, and will be, dealt with the adoption of one, or the combination of, any of following four methods: a.) Increase the production abilities of the remaining employees, b.) Increase the number of overtime hours, c.) Increase the amount of work that is contracted to outside vendors, d.) Reduce the size of the fleet. This Bureau, will attempt to combine portions of all three areas, and maintain the lowest possible expenses.

TEMPORARY REASSIGNED EMPLOYEES

In September of 2003, four employees originally assigned to the Incinerator were detached to this Bureau. The employees, Mr. Sam Beasley, Mr. Randy Ritter, Mr. James Shipper and Mr. John Reinard, all having mechanical abilities, were assigned to this Bureau to assist with the daily operations. Mr. Reinard was assigned as the shop operations supervisor, Mr. Beasley and Mr. Ritter were assigned to the heavy equipment division.

2005 IN REVIEW (continued)

Mr. Shipper was assigned to the Bureau's Procurement and Supply Division for a short period but was returned to the Incinerator for a position in the "scale house".

Mr. Reinard had since retired and Mr. Michael Blackstock, also from the Incinerator, was then detached to take his place. In early September of 2005, all the Incinerator employees returned to their regular assignment. These employees will be seriously missed. Their return had a negative impact on the workload / backlog since the vacancies created by their return will not be filled in the 2006 budget. We will however, regroup and take the appropriate steps necessary to maintain operations.

Also departing the Bureau was the Administrative Assistant, Ms Julia Miranda. Ms. Miranda had medical complications and decided to take advantage of an "early-out" offered by the City. She was a dedicated employee and will be missed.

Temporary replacing Ms. Miranda was a gentleman by the name of Gerald Davis. Mr. Davis was a temporary employee from a local agency. Mr. Davis brought many talents to the City but he was only a temporary employee "filling-in" for a full time position. We thank Mr. Davis, for his time, talents and abilities that he had the opportunity to briefly share with this Bureau and the City in general.

New to the roles of the Bureau is Ms. Lisa Nussbaum. Ms. Nussbaum comes to us from the Dauphin County Library System. She has many skills and abilities new to the City. We welcome her and look forward to working with her for many years to come.

As stated in this and previous annual reports, we must recognize and thank all those employees who departed, for what ever reason, for their dedication to this operation and who assisted this Bureau in fulfilling its daily responsibilities, and overall mission, over the past years.

REACHING OUT – AND, WE CAN ALL STAND PROUD

It seems just like yesterday when, in reality, it was latter part of August of 2005, when true devastation did take place. The devastation, a Category V hurricane, better known as "Katrina" come ashore in Florida, Louisiana, Mississippi and Alabama. With winds sustained in excess of one hundred and seventy five mile per hour, Katrina caused over \$75 billion dollars in damages and is responsible for 1392 deaths. The storm will go down in the history books as one of the worst disasters ever experienced. While it may have seemed like an eternity to some, relief assistance was quickly dispatched to help and abate the residents and area. Yes, the City was able and took true pride in being able to dispatch Police, Fire and First Response individuals and equipment to help in the devastated area.

The City needs to thank the employees of this Bureau who assisted in the logistical support in preparing the vehicles and equipment that was ultimately dispatched. Their support is rarely acknowledged yet if it were not for their effort, the front line would never make it to the front.

2005 IN REVIEW (continued)

VEHICLE EMISSION TESTING

In a previous report an outline of the Commonwealth's Vehicle Emission Inspection was included. At that writing, the Emission Inspection Program, which was adopted by the State in December of 2002, was only one month old. The program is now over twenty four months old and it, together with the City's compliance to it, continues flawlessly.

During the first 24 month period, in excess of 600 emission inspections were completed. Calculated at the market cost of \$45.00, per inspection, the City had a savings in excess of \$27,000.00.

The costs, approximately \$10,000.00, associated with entering the program have now been fully recovered. Future years will result in a total net savings. This is only but one additional example of what can be accomplished when the proper tools are provided to reach a desired goal.

It should be noted the next tier, of 2 final stages for the Emission Inspection Program, is beginning to evolve. The next step in the program will result in a few notable changes to the existing program. The major change involves the vehicle's emissions systems. The automobile manufacturers are improving the systems by making them more technical, sophisticated and with less ability to be tampered with. This may be also accomplished, as the politicians are discussing at this writing, by the Commonwealth adopting the emission standards for vehicles identical to those for the state of California. While this alone will not have an "operational cost" impact, it will have dollars associated. Those dollars will be the additional cost for the purchase of a new vehicle having such standards / optional equipment.

The other change is that that 2007 will bring a new era to diesel engines and the emission requirements as mandated by the Federal Government. It is highly probable that, by 2008, (once believed to be five years away) the Commonwealth of Pennsylvania will have an Official Emission Inspection Program for diesel powered vehicles and equipment. One must understand the emission program will not only effect vehicular equipment but will also effect off-road equipment and facility heating (furnaces) units. More information will be provided as the time grows nearer and information becomes available.

RECYCLING

The City has operated, for many years an active recycling program. This program has also included the internal operations of this Bureau and the City in general. At one time all lubricants purchased were made from virgin crude oils. In an effort to conserve the precious natural recourse of petroleum, a major change was made. The change is the City now only purchases lubricants that are re-refined.

Re-refined is a term used in the petroleum industry that defines a petroleum product that has been used, and reclaimed or reprocessed to be reused. The reclaiming / recycling process includes the filtering, cleaning and otherwise removing the impurities from the used product.

2005 IN REVIEW (continued)

Once cleaned, new additives are then remixed to the product, which restores the product to an existing published standard. Lubricants in this form are then of a same standard, if not better than, the original virgin product. Early in the program the City supported the reclaiming process by selling used lubricants back to the supplier for the re-refining process.

This, “full circle” process was a major step in the Bureau’s efforts to support recycling for the past five years. The program has however, once again been improved. We no longer sell used oil to the supplier.

While continuing to purchase the used re-refined oil, rather than selling the used oil back to the supplier, the City now uses it as a fuel in furnaces that support the heating of this Bureau facilities. This auxiliary and sometimes main heating source is needed since the complex is dependent on the Incinerator for hot water, supplying heat for the facilities. The end result is a total win-win program. First, the cost of re-refined lubricants is less than that of equal virgin lubricants. Secondly, use of the used oil as a fuel reduces the dependence on an expensive non-renewable resource and reduces the funding needed to purchase fuel for the heating furnaces at the Incinerator during the “shut-down” period. Required however is one additional heater to provide heat to the Body Shop Division of this bureau.

The Bureau is now entering the next generation. From virgin mineral oil to re-refined mineral oil to synthetic oil. The synthetic oil program with oil sampling and extended drain intervals is the next step in the process. The bids for synthetic oil were solicited in the latter portion of 2005. The program will go in effect in 2006. The results are expected to be phenomenal through extension of drain intervals and improving the recycle pattern. More on this topic in future reports.

INCREASED FUEL COSTS

What was once a nuisance expense in any budget that involved a fleet has now turned into a major problem. That is, the price of fuel and product produced from petroleum. In the days of old, fuel would be calculated at hundreds, or sometimes thousands, of dollars. Today, however, it is calculated at hundred of thousands, if not millions, of dollars. For example, the following is an illustration of how fuel prices have changed over the past several years. These numbers are the cost per gallon that was budgeted for and not an average. The actual average far exceeds the budgeted numbers outlined.

<u>Year</u>	<u>Diesel</u>	<u>Gasoline</u>
2006	\$2.13	\$2.04
2005	\$1.61	\$1.45
2004	\$1.07	\$0.93
2003	\$0.95	\$0.91
2002	\$0.81	\$0.72
2001	\$1.03	\$0.96

2005 IN REVIEW (continued)

<u>Year</u>	<u>Diesel</u>	<u>Gasoline</u>
2000	\$0.66	\$0.64
1999	\$0.54	\$0.49

This equates to a 295% increase in the cost of diesel and a 319% increase in the cost of gasoline for an approximate 6 year span.

The excessive cost of fuel has a devastating effect on the overall City's budget. We, at this Bureau, are taking every step available to insure the units in service are in the most efficient mechanical condition possible. It behooves other employees however, to also take every measure possible to reduce fuel consumption. Some steps include, ensuring tire pressure is correct, turn the engine off when just sitting for an extended period, restrict air conditioning use, maintain a clean vehicle and insure the unit is turned-in for service at the prescribed time.

While we can not stop using fuel, we should take the necessary measures, as a team, to reduce the amounts consumed and reduce the dependence we have on petroleum, and the precious natural resource, oil.

OBJECTIVES FOR 2006

As in the past objectives are always a part of each annual report. Many times the number of objectives seem to become overwhelming. Thus, a new effort will be placed at identifying, each year, only the three most important. This will permit the Bureau to largely concentrate on the most important rather than listing many, not allowing proper attention to each. The following are the three objectives, listed in order of importance, which will be pursued, or continued to be pursued, in the upcoming calendar year of 2006.

FLEET MANAGEMENT - AUTOMATION

This objective has been in and will remain in every annual report to insure true compliance with the Mayoral Executive Order Number 5, which Fleet Management effort now is in the hands of this Bureau. One of the first objectives will be to compile an outline of what programs can be adopted to reduce the budgetary expenses associated with the operation of the fleet. This effort in its own will be a large undertaking, since any program considered must be able to be implemented Citywide, while not compromise any agencies existing operations. The information realized from the automated "Fleet Management" program will cause this area to be expanded.

FACILITY REORGANIZATION

Several annual reports have made reference to the continued growth of the fleet. Together with the increase in number of vehicles and equipment the parts and supply inventory has also increased. Because there has never been any formal inventory tracking program many times duplicate inventory would be purchased, shelved and forgotten about. Hence, when an item was needed for a repair, and if the prior purchase was overlooked, another, unnecessary item was acquired. Because of this problem, a major reorganization of the Procurement and Supply Division will be completed. Along with the implementation of the above, automated, inventory system, improving the inventory accountability, the parts room and three different rooms (warehouses) will be reorganized. This program will result in improved floor plans, and taking into consideration the type size and movement of the inventoried item. The reorganization of the floor space has begun and will continue. Furthermore, efforts to reorganize the facility will also include the floor area which was once held captive to the collections of the Master Mechanic of the Bureau of Fire.

VEHICLE MAINTENANCE AND REPAIR OPERATIONS

	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>04 vs. 05</u>
<u>Equipment Repaired (Units)</u>										
Trucks	1681	1450	1483	1430	1386	935	790	925	748	-19%
Passenger	1285	1387	1273	1070	960	803	1049	993	891	-10%
Heavy Equipment	96	193	194	179	251	579	600	461	353	-23%
Misc. Equipment	184	138	104	163	151	82	162	72	34	-52%
Total Units	3246	3168	3057	2842	2748	2399	2601	2912	2026	-30%
<u>Equipment Preventive Maintenance</u>										
(Not calculated in above repairs)	576	573	553	437	498	476	439	441	377	-15%
<u>Fuels Dispensed</u>										
Gasoline	149,858	154,540	146,652	143,571	157,601	189,615	188,626	261,500	268,045	+3%
Diesel	150,396	173,283	183,851	182,211	186,131	289,688	204,388	198,357	238,036	+20%
Total Gallons	300,254	327,823	330,503	325,782	343,732	379,303	393,014	459,857	586,430	+27.5%
<u>Invoicing</u>										
Utilities	\$111,857	\$146,856	\$131,289	\$146,223	\$144,227	\$155,719	\$227,556	\$228,204	\$237,309	+4%
General Fund	\$441,593	\$424,690	\$433,415	\$461,913	\$502,425	\$475,900	\$581,074	\$506,769	\$459,260	-9%
Others			\$1,135	\$1,197	\$660	\$1,193	\$2,037	\$941	\$1,033	+10%
Total	\$553,450	\$571,790	\$565,839	\$609,333	\$647,311	\$632,812	\$811,668	\$735,994	\$697,602	-5%

In excess of seventy five and a half (124.5) hours of overtime were exhausted for the fiscal year of 2005.

The average work order backlog was 25 jobs per month.

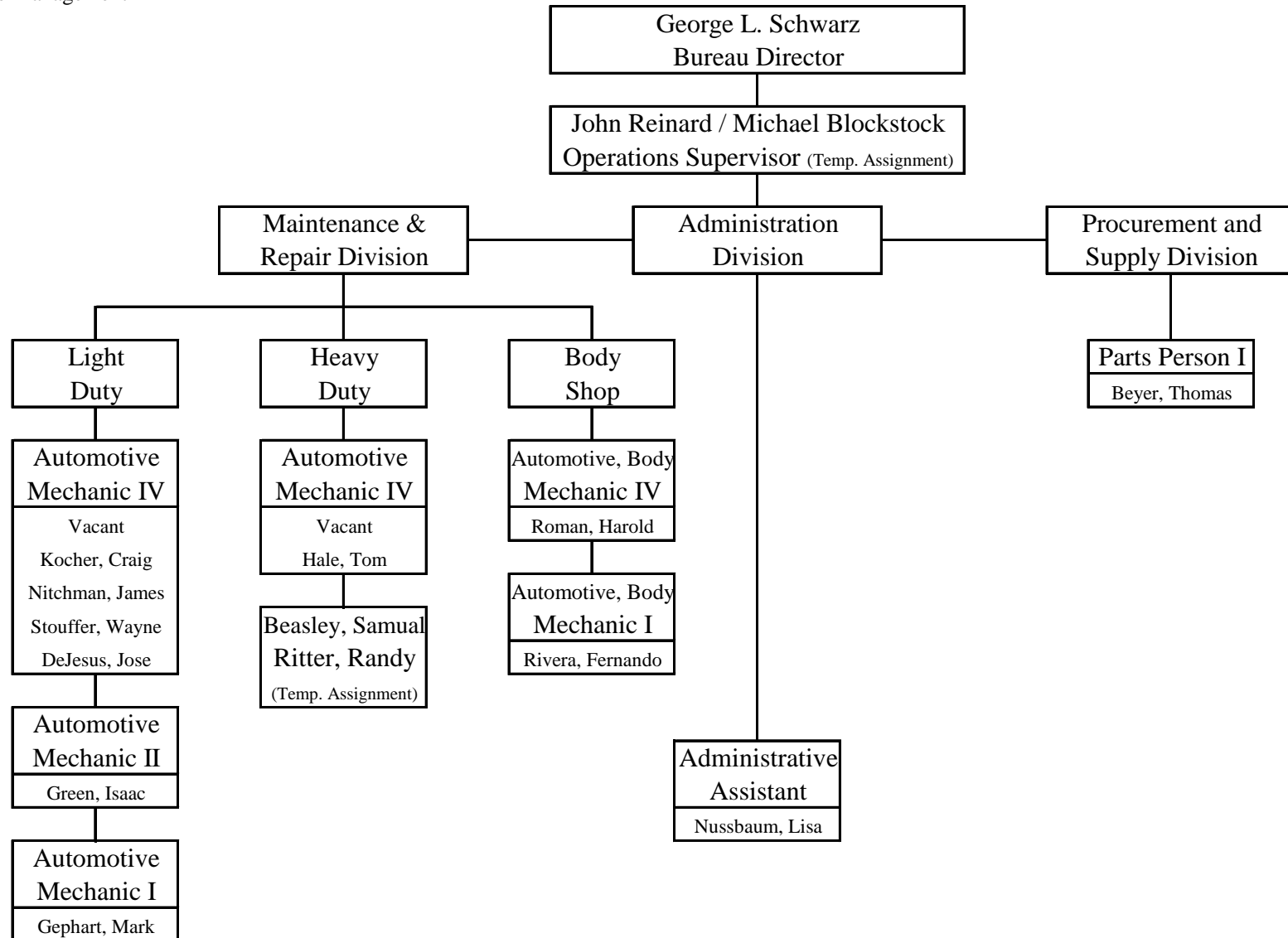
BUREAU OF VEHICLE MANAGEMENT

GEORGE L. SCHWARZ, DIRECTOR

2005 EMPLOYEE ROSTER

BEASLEY, SAMUAL	MAINTENANCE MECHANIC III (temporarily detached from Incinerator)	03/27/79
BEYER, THOMAS	PARTS PERSON I	04/04/02
BLACKSTOCK, MICHAEL	OPERATIONS SUPERVISOR (temporarily detached from Incinerator)	07/26/93
DAVIS, GERALD	ADMINISTRATIVE ASSISTANT	Temp
DEJESUS, JOSE	AUTOMOTIVE MECHANIC IV	07/20/88
GEPHART, MARK	AUTOMOTIVE MECHANIC I	08/03/92
GREEN, ISAAC	AUTOMOTIVE MECHANIC I	08/12/02
HALE, TOM	AUTOMOTIVE MECHANIC IV	06/05/89
KOCHER, CRAIG	AUTOMOTIVE MECHANIC IV	03/03/75
MIRANDA, JULIA	ADMINISTRATIVE ASSISTANT	03/26/79 (retired)
NITCHMAN, JAMES	AUTOMOTIVE MECHANIC IV	04/14/75
NUSSBAUM, LISA	ADMINISTRATIVE ASSISTANT	10/17/05
RITTER, RANDY	MAINTENANCE MECHANIC III (temporarily detached from Incinerator)	08/27/79
ROMAN, HAROLD	AUTOMOTIVE BODY MECHANIC IV	07/06/01
STOUFFER, WAYNE	AUTOMOTIVE MECHANIC IV	08/10/87

Vehicle Management



2005 BUDGET

PERSONNEL – SERVICES		JOB CLASSIFICATION	BUDGET	ALLOCATION
Salaries – Mgmt.	55,763	Director (VMC)	1	55,763
Salaries – BU	405,757			
Overtime	3,644			
Fringe Benefits	172,021	TOTAL MANAGEMENT	<u>1</u>	<u>55,763</u>
TOTAL	<u>637,185</u>	Automotive Mechanic IV	5	214,368
		Automotive Body Mechanic IV	1	43,035
		Parts Person II	1	37,889
		Automotive Mechanic II	2	75,878
		Automotive Body Mechanic I	1	34,587
Communications	4,200			
Professional Fees	0	Total Bargaining Unit	<u>10</u>	<u>405,757</u>
Utilities	18,250			
Insurance	0			
Rentals	6,000	Overtime		<u>3,644</u>
Maintenance & Repairs	113,900	FICA		35,587
Other Services	15,000	Healthcare Benefits - Active		115,604
Supplies Expenses	1,896,700	Healthcare Benefits - Retired		20,830
Minor Capital Equipment	<u>2,054,050</u>	Total Fringe Benefits		<u>172,021</u>
CAPITAL OUTLAY	0			
		TOTAL	<u>11</u>	<u>637,185</u>
TOTAL APPROPRIATION	<u>2,691,235</u> =====		=====	=====

ADVANCED WASTEWATER TREATMENT FACILITY

THOMAS J. MEALY – SUPERINTENDENT

ACCOMPLISHMENT REPORT

GENERAL

This annual report is prepared for the purpose of furnishing information pertinent to the operation and maintenance of the Harrisburg Advanced Wastewater Treatment Facility (AWTF) during the calendar year 2005. The function of the Harrisburg AWTF is to protect the quality of its receiving waters: namely, the Susquehanna River and the Chesapeake Bay. At the Harrisburg facility, wastewater processing operations include preliminary, primary, and advanced secondary treatment.

Under the direct management of the City of Harrisburg and ownership by The Harrisburg Authority, the treatment facility was properly operated and maintained during 2005. The facility has a permitted capacity of 37.7 MGD while serving an estimated population of 122,000 residents from the City of Harrisburg; the Boroughs of Paxtang, Penbrook, and Steelton; Susquehanna Township; and portions of Lower Paxton and Swatara Townships.

Throughout the year, the facility met National Pollutant Discharge Elimination System (NPDES) requirements, with three exceptions. The permit requirements address hydraulic loading and organic discharges established by the United States Environmental Protection Agency and the Pennsylvania Department of Environmental Protection. The resulting overall compliance with the NPDES permit limits was 99.8 percent.

HISTORY AND DEVELOPMENT

In 1957 the City of Harrisburg created the Harrisburg Sewerage Authority to construct a wastewater conveyance system and primary treatment facilities. The initial project, completed in 1959, included intercepting sewers, two pump stations, force mains and a 26.8 MGD primary wastewater treatment plant. The treatment plant was designed to remove grit and settleable solids, as well as to disinfect treated wastewater prior to discharge to the receiving stream, which is the Susquehanna River. Sludge conditioning was achieved by thickening, anaerobic digestion, elutriation, dewatering and drying or incineration. Sludge disposal techniques included liquid land application, sale of dried sludge to agriculture users and incineration.

In 1969, the City received an order from the Commonwealth of Pennsylvania to upgrade its level of treatment to comply with new Federal water quality standards. After studies to determine the most cost-effective means of achieving upgraded treatment, the City, in 1972, directed the Harrisburg Sewage Authority to proceed with the design of a 30.9 MGD high purity oxygen-activated sludge process with chemical treatment for phosphorus removal. Also, sludge conditioning and disposal were redesigned and relocated to the Dewatering and Drying Building. They included chemical condition prior to vacuum filtration with final disposition of the dewatered sludge being transported to the Harrisburg Steam Generating Facility. The co-disposal option eliminated the necessity of fossil fuels for sludge drying and maximized use of existing City facilities.

Financing of the Harrisburg AWTF was made possible through a \$19.6 million construction grant from the United States Environmental Protection Agency and the sale of the Authority's Sewer Revenue Bond issue which provided the local financial match. Construction of the project began in 1976 and it was operational in 1979.

During 1984, the City initiated and the Authority implemented a co-generation project utilizing the digester's methane gas to generate electricity for sale to the Pennsylvania Power and Light Company. The heat, generated from this process is reclaimed via a water-cooled engine jacket and is used to heat the primary digester and plant buildings.

Upon evaluation of the existing sludge dewatering process at the Dewatering and Drying Building in 1989, it was determined to be outdated and inefficient. Consequently, the sludge dewatering process was moved to the main plant with the installation of two Belt Filter Presses and the placement of dewatered sludge on a storage pad for temporary holding prior to hauling to a landfill for disposal.

Other improvements which occurred, include the relocation of the chlorination system, expansion of the laboratory, and construction of a conference room in 1990. In 1991, one of two air compressors associated with the pure oxygen system was downsized to produce a annual savings of \$97,000.00 in electrical charges. A new 10,500 square foot garage was constructed in 1994 to house conveyance and treatment equipment. During the mid 1990's, the original Detritor System was replaced with a Pista Grit Removal System and a Cyclone Degritter System was installed on the primary sludge process system. As a result of this improvement, the facility

AWTF

received a hydraulic upgrade for daily average flow from 30.9 MGD to 37.7 MGD. The last major upgrade to the facility occurred in 1998 and included the installation of a supervisory control and data acquisition (SCADA) computer system.

PROCESS

The treatment process consists of preliminary, primary, and advanced secondary treatment. Preliminary treatment is designed to remove substances that might be harmful to downstream systems or adversely affect the operation of the treatment plant. Methods and equipment employed to accomplish this include mechanical bar screens at the Front Street and Spring Creek Pump Stations, a Pista Grit Removal System for raw wastewater, and a hydrogritter for sludge at the main facility.

Primary treatment consists of four sedimentation tanks designed to separate the settleable and floatable solids from the wastewater for appropriate handling. Sludge that accumulates in the tanks is pumped to gravity thickeners, and the treated wastewater is pumped to the secondary treatment units.

To further reduce pollutants at the Harrisburg AWTF, advanced secondary treatment is used. The objective of the secondary system, or activated sludge process, is to convert nonsettleable substances, in colloidal or dissolved form, into biological floc. The biological floc is developed in three pure oxygen aeration tanks and is settled out in six secondary clarifier tanks, providing for a high degree of treatment.

Phosphorus removal is accomplished by a chemical process. Coagulants such as ferric chloride or ferrous sulfate combine with phosphate in the wastewater to form a floc that is subsequently removed in the secondary clarifiers.

Biological and chemical flocs produced in secondary treatment are removed from the six secondary clarifiers. Most of the settled floc is pumped to aeration tanks to seed the process. The remainder is transferred to the two gravity thickeners.

The treated wastewater is disinfected by chlorine prior to discharge into the Susquehanna River. Four chlorine contact tanks provide the required contact time for disinfection as required by regulatory agencies. Disinfection removes or inactivates pathogenic organisms.

The primary and secondary sludges are combined and thickened in two gravity thickeners. The sludge is then pumped to two primary digesters. Anaerobic bacteria in the digesters consume organic matter in the sludge and produce gas containing approximately 60 percent methane. The digester gas is used as an energy source for heating the primary digesters and facility buildings, and as a fuel to operate two 400-kilowatt generators. The primary digested sludge is transferred by gravity displacement to two secondary digesters. These units permit additional sludge decomposition, gravity concentration, and storage of methane gas and sludge.

AWTF

Ultimate sludge disposal is accomplished by dewatering on a belt filter press. The end product, consisting of approximately 18.4 percent solids, is then placed on a sludge holding pad prior to transporting to a landfill.

OPERATION

The AWTF serves an urban area of 43 square miles. The hydraulic load to the plant averaged 23.5 MGD in 2005, a decrease from the 2004 average flow of 27.0 MGD. April was the high flow month with an average of 34.4 MGD, while the lowest flow period occurred in September, with an average of 15.9 MGD.

The organic load to the plant is the measure of pollutant strength and was recorded in terms of biochemical oxygen demand (BOD), suspended solids (SS), and phosphorus (P). The annual average daily values were 130 mg/l, 124 mg/l, and 3.3 mg/l, respectively. In terms of poundage, the BOD average was 25,479 pounds per day, the SS averaged 24,303 pounds per day, and the P average was 647 pounds per day. Organically, the 2005 values were more than 2004's data. The former yielded 24,770 pounds per day BOD, 24,094 pounds per day SS, and 608 pounds per day P.

The yearly average effluent carbonaceous biochemical oxygen demand (CBOD) per day was 10 mg/l or 1,950 pounds, SS averaged 19 mg/l or 3,248 pounds, and P was 1.6 mg/l or 297 pounds. The destruction of pathogenic organisms, as measured by the fecal coliform analysis, averaged 74/100 ml on the year while using a monthly average of 7,261 pounds of chlorine disinfectant.

Operation removal efficiency varied nominally in 2005. Primary removals averaged 21 percent for BOD and 35 percent for SS. Compilation of secondary treatment removal (primary inclusive) recorded 91 percent for CBOD, 82 percent for SS, and 47 percent for P.

Sludge handling and processing consists of a variety of operations that incorporate concentration, stabilization, dewatering, and landfilling. The average daily removal of solids during 2005 was 7.2 dry tons per day. The cost per dry ton of solids averaged \$315 per ton and consisted of an average of 18.4 percent solids. The total of wet solids placed in landfills during the year was 14,314 tons.

On February 1, 2003, The Harrisburg Authority was issued a new NPDES permit by the Department of Environmental Protection which contained all regulated effluent parameters. The requirements of this NPDES permit will be in effect until midnight, February 1, 2008.

MAINTENANCE

The responsibilities of the Maintenance Division include the maintenance of all properties of the AWTF. Mechanical problems that did occur were corrected in a minimal amount of time. Many would-be breakdowns were averted through a preventive maintenance program and a systematic replacement policy for inventory parts. City expenditures for repairs and replacement of treatment equipment totaled \$473,734.62.

Major projects completed by this division in 2005 include:

BELT FILTER PRESS

- Belt Filter Press Number 1:
 - Replaced the friction disc and seals in the main drive, the perforated roll and bearings, two steering bellows and rebuilt the gearbox for the Dewatering Drum Drive.
- Belt Filter Press Number 2:
 - Replaced the 2-inch water meter for the wash water, the pneumatic steering controller, the dewatering drum screen, the gearbox and chains for the dewatering drum drive and replaced the screen and unblocked the drain line on the west side dewatering drum.
- Replaced the conveyor belt and six flat rollers on the Incline Conveyor.
- Replaced the conveyor belt, seven troughing, and two flat rollers on the Horizontal Conveyor.
- Rebuilt the pump and gearbox assemblies in the two Stranco Polyblend Systems.
- Replaced the polymer pump in the Number 2 Stranco Polymer System.

BOILER BUILDING

- Replaced the alternator system for the Hot Water Boilers.

CHEMICAL STORAGE BUILDING

- Replaced the fan assembly for Power Vent Number 11 in the Compressor Room.
- Replaced the motor and rebuilt the pump on Number 1 Cooling Water Pump for the Unox Compressors.
- Installed an air operated chemical pump for the Ferrous Sulfate addition.

CHLORINE BUILDING

- Rebuilt the two vacuum regulating valves for the Chlorinators.
- Replaced two vacuum regulating valves on the Main Chlorine System.

AWTF

CONTROL BUILDING

- Installed a work station and sample sink for sludge hauler sampling.
- Rebuilt the pump assembly on the Watson Marlow Sludge Pump located in the basement.
- Replaced the bearings and seals in the gearbox for the Number 2 Marlow Sludge Pump in located in the basement.
- Rebuilt Plant Water Pump Number 3 located in the basement.
- Repaired the computer modem for the SCADA System located in the Operators Room.
- Replaced two high-pressure sodium light fixtures.
- Fabricated and installed aluminum angles to support the door frame, replaced the door closure, hinges, and latch on the front of the building.
- Replaced the chemical refrigerator in the Laboratory.
- Repaired (weld) the pressure vessel for the autoclave in the Laboratory

DEGRITTER BUILDING

- Replaced the bottom cone section and liner on the Hydrogritter.

FINAL SETTLING TANKS

- Rebuilt the bearing assembly on the Number 2 Scum Pump in the Pipe Galley.
- Rebuilt gear motor on Final Settling Tank Number 3.

FRONT STREET PUMP STATION

- Replaced the distribution block on the hydraulic cabinet for the rag removal system.
- Replaced the hydraulic ram cylinder on the rag removal system.
- Replaced the wet well ventilator.

GREASE PIT

- Replaced the hose and lubricating fluid in the 3 inch peristaltic hose pump at the Chlorine Contact Tanks.

MAIN GATE

- Replaced the drive shaft and chain sprocket on the motorized gate operator at the entrance to the AWTF.

OXYGENATION GENERATION EQUIPMENT

- Performed the annual Unox turnaround preventive maintenance and instrument calibrations.
- Replaced the liquid level control transmitter for the main condenser.

AWTF

OXYGENATION TANKS

- Replaced the motor on Mixer Number 2 for Oxygenation Tank Number 1.
- Rebuilt the gearbox assembly on Mixer Number 2 for Oxygenation Tank Number 3.
- Replaced the oil seals in Mixer Number 1 on Oxygenation Tank Number 1.

PRIMARY DIGESTER CONTROL HOUSE

- Rebuilt the pump and replaced the motor for the Number 2 Sludge Recirculating Pump located in the basement.
- Replaced the motor and belts for the Number 3 Sludge Recirculating Pump located in the basement.
- Installed new slip resistant steps going to the roof.
- Rebuilt the Number 1 Sludge Transfer Pump located in the basement.

PRIMARY SETTLING TANKS

- Replaced the eight inch sludge valve and valve operator in Primary Settling Tanks Number 1 and 2.
- Replaced the control circuit board in the motorized valve operator for Primary Settling Tank Number 3.
- Replaced thirty attachment links for the cross collectors in Primary Settling Tank Number 4.

SCALE

- Replaced the control panel, remote digital display, and calibrated the scale at the Sludge Storage Building.

SETTLED SEWAGE PUMP STATION

- Rebuilt the Number 2 Effluent Pump in the located in the basement.

SPRING CREEK PUMP STATION

- Rebuilt the pressure regulator on the hydraulic cabinet.
- Repaired the scrapper bar assembly for the Bar Screen.
- Repaired the bar assembly in the bottom of the Bar Screen.

THICKENED SLUDGE PUMP STATION

- Replaced the 4-inch PVC line for the sludge haulers.
- Repaired the 3-way valve between the Number 2 and 3 Sludge Pumps.
- Replaced a pole light assembly at the steps leading to the Thickeners.

FIELD MAINTENANCE

The Field Maintenance Division is responsible for the integrity of the conveyance system and the minimization of combined sewer overflows. The division also has the added responsibilities of pump station routine maintenance and debris clearance from waterways.

Projects completed by this division in 2005 included:

- Assisted Plant Maintenance with the repairs to the Primary Settling Tanks.
- Changed the grease fittings as needed and lubricated all equipment on the Regulating and Flood Chambers.
- Cleaned and washed down all twelve siphon basins six times each
- Flushed the drain lines for the Chemical Storage Building.
- Flushed the line from the Primary Settling Tanks to Grease Pit Number 1, Grease Pit Number 1 to the Chlorine Contact Tanks and the Primary Settling Tanks to grease Pit Number 2.
- Flushed the 1200 block of the Hemlock Interceptor.
- Flushed the drain line and cleaned the catch basin in the garage of the Degritter Building.
- Inspected five blowout chambers with no maintenance or painting required.
- Installed new CSO Outfall Number signs along the Susquehanna River and Paxton Creek.
- Inspected the Spring Creek, Paxton Creek, Asylum Run, Hemlock Street, and Paxton Creek Relief Interceptors. The inspections were performed twice to determine the condition of the interceptors.
- Replaced twelve Combined Sewer Overflow signs along the access steps and ramps going down to the Susquehanna River.
- Pumped and removed grit from the Primary Settling Tanks during repair downtime by maintenance.
- Pumped and flushed all the lines associated with the Pista grit system.
- Removed 406 tons of debris from the Grit Lagoon.
- Removed trees and debris from various locations along Paxton Creek and Spring Creek on an as needed basis.
- Replaced the chain on the tide gate at CSO Number 063.
- Replaced the connecting link on the regulating gate CSO Chamber Number 012.
- Replaced three Combined Sewer Overflow Flip Signs along the Susquehanna River.
- Replaced 58 Combined Sewer Overflow Signs along the Susquehanna River and Paxton Creek.
- Updated the CSO reports for the current year.
- Vactored the wet well at the Market Street Pump Station, the grinder pump sump pit for the village at City Island, the Sludge Thickener Tank Number 1 waste pit, the sump pump pit in the Pista Grit Garage, the drain at the southwest corner of the Grit Lagoon and the grease trap for the Garage.

AWTF

- Washed down 58 regulating chambers and 46 flood chambers and lubricated the gates.
- Washed down 174 manholes over the interceptors.
- Washed and vactored the cooling tower for the Oxygenation Generation Equipment.

BUDGET

The budget, as prepared by management, is intended to control expenditures while insuring efficient facility operations and to balance receipts and revenues collected during the budget year. The treatment facility had an operating expense of \$11,154,307.00 and a total annual cost of \$13,498,793.00, debt service cost inclusive. The revenues derived during the budget year were \$12,905,662.00. Monies of the Sewer Revenue Trust Fund were used to supplement the shortfall in revenue.

LABORATORY

The laboratory is a subdivision of the Operations division, providing technical data and support for the operation of the wastewater treatment facility. Daily analysis for all permitted parameters was performed on the influent and effluent, as well as intermediary flows. Daily testing also included the analysis of processed sludges and by-products. The laboratory staff collected and analyzed samples for the industrial user monitoring program and analyzed the samples required for the continuation of the contract waste hauling program.

In 2005 the laboratory analyzed forty two permit scans, eighty-eight surveillance scans, sixty two industrial monitoring surveys, and seven hundred thirty-five routine hauler analyses with an average turnaround time of less than twenty-four days. Sampling and analysis of Paxton Creek and the Susquehanna River was performed frequently at eleven designated sampling sites to continue monitoring the baseline characteristics of these waterways. Testing required for the contract waste hauler and industrial monitoring programs generated \$36,863.25 in laboratory revenue.

Throughout this time, the laboratory maintained its program for annual US EPA Priority Pollutant monitoring on influent, effluent, and sludge cake. To fulfill landfill sludge disposal requirements, annual PA DEP Form 43 analyses were performed on sludge cake, and all necessary records were maintained. In addition to the daily routine testing, metals were analyzed quarterly on influent, effluent and sludge cake, and other process waters, sludges and by-products. Local Limit parameters were performed quarterly as mandated by the permit. The frequency of analyses for total nitrogen was increased from quarterly to weekly in anticipation of more stringent regulatory requirements to meet the terms of Pennsylvania's Chesapeake Bay Nutrient Reduction Strategy.

The increased frequency of some testing resulted in decreased testing of other analytes used for operational control. After evaluation of historical data and trends, it was determined that certain analyses could be eliminated from the daily testing regimen and analyzed weekly with no adverse effects on the operation of the facility. Weekend laboratory testing was reduced

AWTF

further, and samples were preserved for analysis the following week. This decreased scheduled overtime by fifty percent. Additionally, on weekends when the laboratory could not be staffed due to a reduction in the employee compliment, outsourcing was explored as a method to meet permit requirements for daily testing, as well as reduce overtime costs.

Calendar year 2005 again saw quality assurance as a top priority with an objective to improve the accuracy and precision of the data generated by the laboratory. A Proficiency Environmental Testing Program offered by Analytical Products Group, Inc. (APG) provided the laboratory with semi-annual quality assurance samples and statistical review of results. In addition to the APG testing, an internal quality assurance program was continued. This included analysis of blank, duplicate and spiked samples. Also, US EPA certified samples of known values were analyzed on a regular basis as a verification of internally prepared standards. If the results of any quality assurance testing did not fall within the laboratory's control limits, the entire analysis was repeated. Quality assurance records were maintained to summarize results of all calibrations testing and instrument performance. This simplifies a method for technicians, supervisors and inspecting agencies to trace progress.

In the 2005 EPA-DMR Quality Assurance Evaluation, the standard measure of a testing laboratory's performance, the laboratory analyzed all permitted and non-permitted parameters within US EPA acceptance limits.

INDUSTRIAL WASTE PRETREATMENT PROGRAM

The function of the EPA Industrial Waste Pretreatment Program is to ensure that industrial users (IUs) comply with applicable federal, state, and local pretreatment program effluent discharge limitations and regulations. Industrial user compliance eliminates interference or possible damage to the conveyance and treatment system, untreated waste from passing through the AWTF to the receiving stream, the contamination of sludge which limits disposal and reuse options, and exposure of personnel to chemical, explosion, or fire hazards.

During the year, no additional significant industrial users⁽¹⁾ were permitted. The total number of permitted industrial users in 2005 was eleven. Ending 2005 with the closing of Charles D. Snyder & Son, Inc., the total number of permitted industrial facilities was ten. Of the ten permitted industrial users, three are classified as categorical and seven as noncategorical industrial users.

No compliance schedules were issued during 2005 and the number of permitted industrial users on a formal compliance schedule is zero.

Inspection and sampling activities performed by the City during the year included facility inspections, self monitoring inspections, and compliance sampling. In 2005, twelve facility inspections, one facility closure inspection, and ten self monitoring inspections were performed at eleven industrial facilities. Compliance sampling schedules remained at twice annually for three consecutive days with each day providing a separate sample. Additional monitoring is performed when necessary. The total number of significant industrial users sampled for

AWTF

compliance monitoring was ten and encompassed sixty-two sampling visits. Of the four significant industrial users not sampled through three consecutive days, three are landfills with a uniform and seasonal discharge and one was an electroplater in the shut down phase.

Self monitoring sampling and reporting activities for significant industrial users remained at quarterly for a conventional pollutant discharger and monthly for a metal and organic priority pollutant discharger. The total number of significant industrial users required to submit a self monitoring report is ten and the total number of self monitoring sampling events was seventy-eight. Of the one significant industrial user not sampling, it is a landfill where the City opted to perform quarterly compliance sampling. In this instance, self monitoring and reporting is not required.

During the 2005 calendar year, three violation notices were issued. One letter of violation was issued for noncompliance with effluent discharge limits. Where noncompliance persisted or an industry did not return to compliance within a satisfactory time frame, significant noncompliance enforcement action is taken. One letter of violation was issued for a significant noncompliance reporting violation where self monitoring was not performed in the specified time frame and one letter of violation were issued for a significant noncompliance oil/grease technical review criteria violation. In this instance, public notification was required.

(1) Significant industrial user as defined by Title Nine, Part Five, Section 9-501.1 of the City's Codified Ordinances means all categorical industrial users or any noncategorical industrial users that:

- A). Have a discharge flow of 25,000 gallons per day or more per average workday of process wastewater; or
 - B). Have an average process flow which makes up five percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
 - C). Have a reasonable potential in the opinion of the Control or Approval Authority to adversely affect the treatment plant through inhibition, pass through of pollutants, sludge contamination, or endangerment of AWTF workers, or to violate any pretreatment standard or requirement.
-

PRETREATMENT PROGRAM DEVELOPMENTS

During the 2005 calendar year, the AWTF did not experience an upset or permit violation attributed to the indirect discharge of industrial waste. NPDES permit violation(s) caused by something other than an industrial discharge are as follows: Monthly average ammonia limit exceedances were the result of lower than normal flows. In order to monitor toxic and incompatible pollutants, various analyses were performed on the plant's influent, effluent, and sludge

AWTF

Interpretation of influent metals concentration trends show a slight increase in copper and zinc concentrations in 2005. The cadmium, chromium, nickel, and lead concentration trend lines remained the same in recent years. Arsenic, cyanide, and mercury concentrations show no appreciable amounts detected since 2001.

Interpretation of effluent metals concentration trends show a slight decrease in chromium and copper concentrations in 2005. The zinc concentration trend line appears to have leveled off since decreasing in 2002. The cadmium concentration trend line shows no upward or downward trend in recent years. Arsenic, cyanide, lead, mercury, and nickel concentrations show no appreciable amounts detected in 2005.

Interpretation of filter cake or biosolids metals concentration trends show a slight decrease in zinc concentrations in 2005. The high level of zinc is attributed to the use of a zinc based corrosion inhibitor in the City's water supply. The copper and lead concentrations show a slight increase in 2005. Cadmium, chromium, and nickel concentrations show no upward or downward trend in recent years. Arsenic, cyanide, and mercury concentrations show no appreciable amounts detected in 2005.

Local limits were approved on September 30, 1988, by the US EPA and adopted by the City of Harrisburg on October 28, 1988. The local discharge limitations were developed with the assistance of the US EPA computer program PRELIM and are based on the allowable headworks loading method and a safety factor of twenty-five percent. Allocation of the daily maximum allowable industrial loadings of the pollutants was achieved by the uniform concentration technique based on total industrial flow.

A toxics reduction evaluation (TRE) was completed on October 9, 1991, as a part of Harrisburg's NPDES permit renewal process to verify the presence or absence of toxic pollutants in the discharge. As a result of the TRE, a new zinc local limit was adopted by the City of Harrisburg on June 24, 1992, and approved by the US EPA on May 19, 1993. The zinc local discharge limitation was developed with the assistance of the US EPA computer program PRELIM and is based on the allowable headworks loading method and a safety factor of twenty-five percent. Allocation of the daily maximum allowable industrial loadings of the pollutants was achieved by the uniform concentration technique based on total industrial flow.

In addition to the development of the daily maximum loadings, instantaneous maximum concentrations in grab samples have also been calculated. The instantaneous maximum values were determined by multiplying the daily maximum concentration, where applicable, by a factor of two. A multiplier of two was chosen to correspond to the same multiplier used by the Commonwealth of Pennsylvania's Department of Environmental Protection in developing the instantaneous maximum values in Harrisburg's NPDES permit.

Industrial Waste Pretreatment Program changes that occurred in 2005 are as follows: The receipt of an updated baseline monitoring report and industrial wastewater discharge application, and re-issued a five year industrial user permit to the Harrisburg Material, Energy, Recycling and Recovery Facility for the B-2 and B-3 landfills and the New Morgan Municipal Authority's landfill; upon receipt of an updated baseline monitoring report and industrial wastewater

AWTF

discharge application amended the Harrisburg Material, Energy, Recycling and Recover Facility industrial user permit to regulate the discharge from the new solid waste combustor and steam/electric generator; incorporated “Pretreatment Streamlining Regulations” pertaining to slug and spill control plans into Harrisburg Material, Energy, Recycling and Recover Facility’s amended industrial user permit; deleted Charles D. Snyder & Son, Inc. from the list of permitted industrial users; updated industrial user primary and secondary flow meter identification and programming files; updated industrial user and contract waste hauling data file used for local limits development; updated the AWTF’s Codified City Ordinance book by cataloguing amendments to the ordinances; assumed responsibility for the “ADS” system wide flow metering program.

The last pretreatment audit was conducted on November 2 and 3, 2005 by US EPA representative Stephen G. Copeland. No deficiencies were found in the pretreatment legal authority, application of standards, control mechanisms, compliance monitoring, enforcement, data management and public participation, or resources. The City was noted to be operating a fully successful pretreatment program. Several program changes are anticipated as a result of the “Pretreatment Streamlining Regulations” promulgated on October 17, 2005. Program changes, where applicable, will be submitted to the US EPA for approval.

CONTRACT WASTE HAULING PROGRAM

The AWTF continues to be well known in Central Pennsylvania as a sludge disposal center for process and septic waste. The objectives of the Contract Waste Hauling Program (CWHP) are to 1) provide an alternate sludge disposal method to regional POTWs, food processing companies, and septic waste haulers; 2) collect permit, disposal, and laboratory fees in excess of expenses; and 3) increase digester gas production by decomposition of the waste by-products. Correspondingly, with increased gas production, there is an increase in cogeneration electrical sales.

A computer program is utilized by AWTF personnel to facilitate the administration of the CWHP. The program maintains customer information, controls daily transactions, produces invoices, and keeps complete accounting records for each customer. Computerization has reduced manual tasks, minimized errors, and structured CWHP activities.

All waste accepted at Harrisburg must meet certain criteria outlined in the Contract Waste Hauling Program Manual to insure the protection of AWTF personnel, structures, equipment, processes, and sludge disposal options. To insure that all waste complies with AWTF requirements, routine monitoring is performed by the facility's Laboratory.

Monitoring is accomplished through either a complete scan upon permit application submittal, surveillance scans, or routine sampling of waste throughout the course of the year. In 2003, forty permit scans, seventy-three surveillance scans, and six hundred six routine samplings were performed.

AWTF

Disposal permits are issued for a one-year period, and each hauler is categorized as handling either process or septic waste. In 2005, thirty-eight process and three septic disposal permits were issued; accordingly, \$2,050.00 in permit application fees were collected. Disposal activities accounted for \$512,399.29 in revenue, while an additional \$25,228.85 was attributable to the sale of electricity based on an increase in methane gas production from the digestion of Contract Waste Hauling sludge.

COGENERATION PROGRAM

The cogeneration process utilizes methane gas produced in the anaerobic digestion process to fuel two 400-kilowatt generators. In turn, the generators produce electricity and heat. Electricity is sold to the Pennsylvania Power Light Electric Utilities at a rate of \$0.06 per kilowatt-hour. Waste heat from the generators is used for space heating at the facility and for heating the Primary Digesters.

The cogeneration system utilizes a six-cylinder internal combustion engine and uses methane gas produced in the digesters as a fuel. Connected to the engine is a 400-kilowatt electrical generator. Heat is recovered from the engine's cooling system.

During 2005, the cogeneration facility operated 70 percent of the time. The average monthly kWh production rate was 204,673, with a yearly total production of 2,456,080 kWh. The average monthly revenue collected was \$12,280, with a yearly total of \$147,364.80. The total revenue collected was more than the 2005 budgeted amount. The revenue increase was attributable to an increase in gas due to the increase in sludge from the Contract Waste Hauling Program.

LOSS CONTROL PROGRAM

The Loss Control Program was established in 1985 with the objective of providing a work-place environment that precludes injury or illness to employees or harm to the community.

Specific parameters are 1) an executive representative responsible for activation and coordination of loss control activities; 2) a Safety Committee comprised of various subcommittees and headed by the Safety Director; 3) accident investigation and maintenance of records; 4) training and educational development to recognize hazards; and 5) control of physical, mechanical, and operational hazards.

Under the direction of the Training and Educational Committee, a video library was established. The library consists of a television, VCR equipment, and videotapes ranging from Eye Safety to Confined Space Safety. Each quarter, the Safety Director selects a tape from the library which is played and viewed by all attending the quarterly Safety Meeting. The present video library has grown to fifty-two safety topics and seventeen training programs. The training tapes have proven valuable as a reliable source of important information.

Monthly handouts include "Safety Now" and "Staying Safe". These handouts continue to provide management staff with information relative to safety management and awareness.

In order to reduce health-associated costs through prevention, an on-site physical fitness room was maintained and offers employees a place to exercise and work out using various pieces of equipment. Providing employees with health-associated programs can provide a positive, healthier environment and encourage healthier habits.

CAPITAL PROJECTS

The Harrisburg Authority issued Sewer Revenue Bonds, Series A of 1988, in the principal amount of \$12,700,000.

The following summarizes the improvements made in 2003 to the Sewage Conveyance and Treatment System from the proceeds of the 1988 Series A Bonds. The various projects were designed to address sludge processing system upgrades, and increased hydraulic capacity.

Digester Number 1 rehabilitation of seal and cleaning project.

ADVANCED WASTEWATER TREATMENT FACILITY

GOALS AND OBJECTIVES

2006

OPERATION

- Modify the configuration of the Grit Removal System. These changes should improve the overall operating efficiency.
- Evaluate Nitrification, De-Nitrification project and pilot plant(s) data.

MAINTENANCE

- Install nine CSO Advisory signs along the Susquehanna River and City Island.
- Rebuild the Number 2 Ingersoll Rand Gas Compressor.
- Replace the gas line for the five heaters in the Garage.

LABORATORY

- Obtain Environmental Laboratory Accreditation in accordance with PA Department of Environmental Protection regulations, 25 PA Coded Chapter 252.
- Update and revise the Laboratory Standard Operating Procedures manual with more detail and graphics.

PRETREATMENT

- Reissue a five-year industrial user permit to the Electronic Service & Design Corporation.
- Revise the Industrial Waste Pretreatment Program to implement provisions of the “Pretreatment Streamlining Regulations” promulgated on October 17, 2005.

BUREAU OF WATER

CHAD BINGAMAN - DIRECTOR

GENERAL

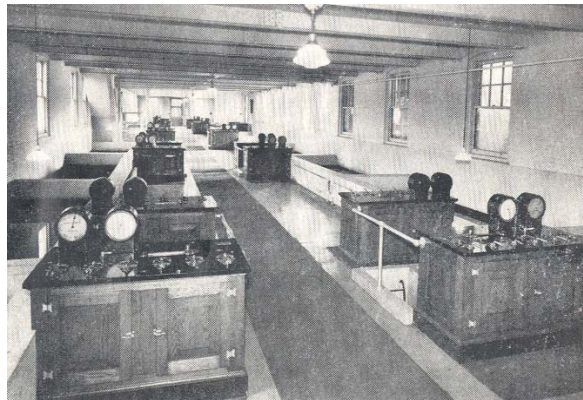
The purpose of this report is to furnish an overview of the operation and maintenance of the Harrisburg Water System during calendar year 2005. The function of this system is to provide, on demand, sufficient potable water to a service area, which includes the City of Harrisburg, portions of the Borough of Penbrook, Susquehanna, Swatara and Lower Paxton Townships.

During calendar year 2005, the water system provided daily service that met or exceeded the requirements of the Federal Safe Drinking Water Act to approximately 20,900 service accounts or an estimated population of 66,000.

HISTORY AND DEVELOPMENT

The origin of the present water-works dates back to 1839, when the Commonwealth granted Harrisburg the authority to take water from the Susquehanna River for supplying its 20,000 residents. By 1843, the original water house was completed along the river near Front and State Streets. A reservoir in the vicinity of Sixth and North Streets was utilized, and a pipeline distribution system gradually developed in the central part of the town. Direct pumping was used for many years thereafter, without the use of filtering methods or chemical controls.

In 1860, Harrisburg was incorporated as a Third Class City, and rapid expansion into the Hill and Uptown districts required larger facilities. An open reservoir was completed in 1873, in Reservoir Park, which provided a gravity fed system by utilizing the high elevation of the park. The original Pump Station was built in 1874 at Front and North Streets for the purpose of mechanically pumping water into the new reservoir. By 1903, the Pumping Station had to be re-equipped with new steam boilers, engines, and pumps, capable of meeting the demands of more than 50,000 residents. A Filtration Plant was constructed on Hargest Island, now known as City Island, and placed into operation in 1905, which provided a filtering system with chemical treatment before the water was pumped into the reservoir.



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In 1924, a number of improvements were completed for the extension and enlargement of the water system at a cost of \$1,600,000. The capacity of the Filter Plant was increased to twice its original size; two turbine pumping units and boiler equipment were installed at the Pump Station; a new 36" force main was laid along North Street from the Pumping Station to Sixth Street and continued to Fifteenth and State Streets; a new 28,000,000 gallon capacity reservoir, completely covered with reinforced concrete, earth, and grass, was constructed in Reservoir Park. This third and largest reservoir was required to supply areas expanding into more distant and higher elevated sections in the Hill district of the City.

In 1936, Harrisburg survived one of the most devastating floods in its' history. The Susquehanna River reached more than 32 feet, inundated City Island, and the southern section of the City. The entire water system was out of service for a week and emergency measures were required to supply the residents with limited water brought in by tank trucks.

Shortly thereafter, the development of a new mountain supply in Rush Township along Clark Creek, about 20 miles northeast of the City, was undertaken by City Council, with the vital assistance of federal and state governments. The William T. DeHart Dam was completed on July 1, 1940 and impounded water flowing from Clark Creek and 23 smaller tributaries, producing a body of water with a capacity of 5,260,000,000 gallons that extended four and a half miles upstream of the dam. The reservoir collected water from a 21.62 square mile drainage area consisting of mostly forestland between the ridges of Peter's and Stony Mountains. Raw-treated mountain water was first delivered to the City during the latter part of the same year. This enormous undertaking was one of the largest and most successful projects during this era of the City's water system. The cost was more than four million dollars, but not only gave the City's residents a natural supply of fresh water, but also prevented any possible ravage to the system from floods.



Until 1948, it was advisable to augment the mountain supply with river water through the old system because the Clark Valley supply was not entirely of proper quality. On January 23, 1948, the old system was discontinued entirely; the Pump Station and Filter Plant were placed on a standby basis, but were maintained operable in the event of emergency.

In 1954 an additional 4 feet was added to the DeHart spillway wall increasing its storage capacity to six billion-gallons. The DeHart Reservoir currently has an overflow elevation of 644 feet and an approximate dependable yield of 10.5 million gallons per day.

WATER

From 1948, the City Island Filtration Plant functioned as a reserve source of water for the City. The facility suffered considerable damage during the flood of 1972, and all filtration operations ceased. It stood vacant until 1987, when for safety reasons it was razed.

During 1987 and 1988, a hypalon lining was installed covering the 20 million gallon finished water reservoir.

In 1990 the sale and transfer of ownership of the water system to The Harrisburg Authority with the City remaining as the managing agent took place. Ground breaking for the Dr. Robert E. Young Water Services Center and River Front Pump Station took place in October of that same year. These projects were completed on July 19, 1994 when the Dr. Robert E. Young Water Services Center was placed in operation. This undertaking was the largest and most successful project of this modern era of the water system. At a cost of more than twenty million dollars it provides the consumers a state-of-the-art water treatment facility and a back-up water source in the Susquehanna River in case of severe drought or other emergencies.



The DeHart Reservoir's Control Building provides flow metering and the capability of adding chlorine, soda ash, and potassium permanganate as required to the raw water prior to its conveyance by gravity through a 42-inch diameter transmission main to the Dr. Robert E. Young Water Services Center in Susquehanna Township.

The Susquehanna River is the water system's secondary water supply. The system's river intake consists of a screened intake structure and a 36-inch diameter pipe. Raw water flows by gravity through the river intake structure to the Susquehanna River Pump Station's intake well where it is then pumped, using three 400 HP vertical turbine pumps rated at 7,000-GPM each, to the Dr. Robert E. Young Water Services Center. The capability exists to add potassium permanganate to the raw water prior to treatment, if required.

The transmission system includes 20 miles of 42-inch diameter steel-reinforced concrete pipe, which conveys water by gravity from the DeHart Reservoir in Clark Valley to the City of Harrisburg. The 42-inch diameter transmission main reduces to a 24-inch diameter pre-stressed concrete cylinder pipe at Division and 7th Streets before it reaches the influent of the Dr. Robert E. Young Water Services Center.

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The Dr. Robert E. Young Water Services Center has two parallel treatment process trains with a design capacity of 20 million gallons per day (MGD). The process trains include two raw water flow meters, four three-stage paddle wheel flocculators, four rectangular clarifiers, eight multimedia gravity filters with an air scour backwash system, two 9,400 GPM backwash pumps, and two finished water flow meters. The Dr. Robert E. Young Water Services Center's treatment capabilities include the chemical addition of carbon, alum, soda ash, phosphate, hydrated lime, caustic soda, ammonia, zinc orthophosphate, and sodium silicofluoride. Disinfection is achieved with chlorine and sodium chlorite addition. Four finished water pumps at the Dr. Robert E. Young Water Services Center are used to transfer finished water to the Upper and Lower Reservoirs located at Reservoir Park for eventual distribution throughout the water system.

The water system uses two reservoirs to store finished water for distribution throughout its service area. The reservoirs are located at Reservoir Park and serve two different pressure zones. In 2000 the Lower Reservoir was taken out-of-service due to structural failure on the west wall. A project commenced in 2001 to replace the old reservoir with two 6,000,000-gallon tanks. The new Lower Reservoir tanks were placed in service on April 1st of 2002 and serve consumers who are located west of the vicinity of 18th Street within the City of Harrisburg.

The Upper Reservoir serves the water system's high-pressure zone and is a reinforced concrete underground reservoir. The basin has a storage capacity of 28 million-gallons. The Upper Reservoir supplies water to consumers located east of the vicinity of 18th Street within the City of Harrisburg and in portions of the Borough of Penbrook, Susquehanna, Swatara, and Lower Paxton Townships.

In June of 2002 an energy conservation project was completed with the installation of an in-line hydro-turbine generator. The generator produces electricity utilizing the water flow from the DeHart reservoir, allowing for a reduction in the Dr. Robert E. Young Water Services Center electrical dependency.

The water system's distribution network includes more than 250 miles of cast-iron, ductile iron, and prestressed concrete cylinder pipe in various sizes from 4 to 42 inches in diameter. There are approximately 1,690 fire hydrants and 3,540 valves in operation within the system.

There are a total of five (5) interconnects between the Harrisburg Water System and the water distribution system owned by United Water Inc. which are used as emergency sources of water. One exists at the intersection of Hoffman and Vaughn Streets in the City of Harrisburg and consists of an eight-inch diameter pipe connection with a water meter and check valve in an underground vault. The second is located at the intersection of Derry and 29th Streets in the City of Harrisburg and consists of a ten-inch diameter pipe connection with a water meter and check valve in an underground vault. The third is located in the Edgemont area of Susquehanna Township along Edgemont Road that consists of a ten-inch diameter pipe connection with a water meter and check valve in an underground vault. The Fourth is located at 28th Street and Locust Lane in Susquehanna Township that consists of an eight-inch diameter pipe connection with a water meter and check valve in an underground vault. Finally a raw water interconnect located off the 42" main line, near the Rockville Bridge supplies untreated water to United Water's Filtration Plant on an emergency basis.

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Our system utilizes two pumping stations to convey water and maintain adequate distribution system pressure. The Gatehouse Pump Station located at Reservoir Park, utilizes two 400 HP horizontal split case centrifugal pumps, each rated for 8,700-GPM, to transfer finished water from the Lower Reservoir to the Upper Reservoir. A booster station, located in Susquehanna Township serves the Union Square Industrial Park. It includes a dual parallel pumping system, which consists of a 750-GPM triplex constant pressure booster pumping system and a 1,000-GPM-fire pump.

BUREAU OF WATER

2005

ACCOMPLISHMENT REPORT

DEHART RESERVOIR AND WATERSHED



Essential functions are to manage the DeHart Dam facilities and watershed operations. The division consists of a DeHart Superintendent/Watershed Manager and (1) Maintenance Specialist.

In 2005, potassium permanganate was not required for the control of taste and odor associated with algae and organic matter in the Reservoir.

A bypass from the reservoir is mandated by the State Water Allocations Permit to provide a minimum daily conservation release of 6.5 MGD for the purpose of preserving the natural flow of Clark Creek. The rate of this flow is monitored at the Carsonville Weir; located downstream of the spillway. Throughout 2005, the required minimum daily conservation release was maintained or exceeded.

The development of the Watershed Management Plan continued with the enhancement of the Water Quality Monitoring Program. Monitoring provides information on the depth from which to draw off water of optimal quality. Applications of copper sulfate were avoided during 2005, which saved the City money in terms of the treatment cost for algae control.

The Secchi Disc Depth is a measure of transparency of the water that assists the watershed manager in determining the amount of algae growth present. The transparency of the water in DeHart Reservoir stayed above the level proven to show eutrophic conditions (i.e., excessive algae growth) throughout 2005.

The trend for overall pH in DeHart Reservoir during 2005 was 5.08, which is down from 5.65 in 2004. The pH level tends to be acidic and slightly lower at the bottom than at the top of the reservoir. Alkalinity, another important parameter in the treatment of the DeHart water supply, increased to an average of 7.54 mg/l, up from 6.54 mg/l in 2004.

WATER

Other Accomplishments in 2005:

- Completed and passed the Annual PA Department of Environmental Protection Dam Inspection with comments.
- Utilized the DeHart database and Water Quality Monitoring Program to select appropriate depth for the raw water intake.
- Continued the Vegetation Control Plan on the dam breast.
- Coordinated pulpwood harvest on 260 acres of watershed.
- Removed dying trees from around residences.
- Installed automatic gate at DeHart entrance.
- Removed fallen tree from creek near Carsonville Weir and mountain line access bridge.

OPERATIONS/MAINTENANCE DIVISION



Essential functions are to operate and maintain all buildings and equipment at the Dr. Robert E. Young Water Services Center, DeHart Dam, Front Street River Intake and Pump Station, Gatehouse, Lower Reservoir, Upper Reservoir, and the Union Square Booster Station. The division consists of an Operations/Maintenance Superintendent, (1) Operations Supervisor, (11) Water Plant Operators, (3) Maintenance Specialists, (1) Electrician, and (1) Electronics Technician.

Through 2005, a total of 3,125.61 million gallons (MG) of water were withdrawn from the combined sources: 3,125.61 MG from the DeHart Reservoir, 0 MG from the Susquehanna River, and 0 MG was supplied to United Water Pennsylvania via the Emergency Raw Water Interconnect. This combined total represents an average daily withdrawal of 8.61 MG, which was in compliance with the State Water Allocation Permit.

Water treatment includes the addition of lime and alum (aluminum sulfate) at the head of the plant for coagulation, chlorine prior to filtration for disinfection, fluoride to prevent dental caries, soda ash and caustic soda for pH/alkalinity adjustment, and finally, zinc orthophosphate for Distribution System corrosion control.

WATER

Other Accomplishments in 2005:

- Conducted numerous tours of the Bureau Facilities for schools and other civic groups throughout the year.
- Continued utilizing the computerized Maintenance Program to schedule preventive maintenance and equipment repairs at all Bureau Facilities.
- Continued utilizing zinc orthophosphate for corrosion control within the distribution system.
- Conducted a Tabletop exercise in conjunction with the Southeastern Counter-Terrorism Task Force.
- Conducted several Water Treatment workshops in conjunction with the Pa-AWWA.
- Received the Partnership for Safe Water, Director's Award for the fourth consecutive year.

WATER QUALITY DIVISION



The Colilert method was utilized during 2005 to test for total coliform and *Escherichia coli*; there were no positive water samples in the distribution system during the yearly monitoring period. The Bureau of Water is required by Pennsylvania Department of Environmental Protection (PA DEP) to test throughout the year for certain parameters, including trihalomethanes (TTHM's), haloacetic acids (HAA's), total organic carbon (TOC's), volatile organic compounds (VOC's), synthetic organic compounds (SOC's), nitrates, radiologicals and zinc.

A change in the corrosion control treatment process in 1999 required the City of Harrisburg to conduct extensive lead and copper monitoring within the distribution system in June and October of 2000. The results of that monitoring were well below State and Federal, lead and copper regulations. Extensive testing continued in 2001 throughout the distribution system, on the basis of those results, the Bureau was granted reduced monitoring status, to a tri-annual schedule for copper and lead analyses. The Copper and Lead Survey analyses in 2004 revealed that the copper and lead concentrations at the residential tap were well below the MCL of <0.015 mg/l for lead and <1.3 mg/l for copper. This Survey again verified the success of our Corrosion Control Program. As a result of our successful program, we were again awarded a triennial testing schedule, which will be conducted in 2007.

Our Water Quality Monitoring Program continued to ensure production of high quality water. In addition to onsite monitoring at the Water Treatment Facility, weekly distribution samples were

WATER

collected and analyzed for free and total chlorine, temperature, pH, iron, total dissolved solids, total hardness, alkalinity and phosphate. This data allows us to monitor the water quality throughout the distribution system.

The Water Quality Lab handles customer complaints ranging from discolored water to odor. All complaints are logged and investigated to determine and eliminate the cause, to the consumer's satisfaction. All 35 water complaints during 2005 were determined to be the result of lack of maintenance of the consumers' hot water heater; water main or service line breaks or flow disruption from Fire Hydrants or Fire Line usage.

Other Accomplishments in 2005:

- The 2004 Consumer Confidence Report was transmitted to all consumers before June 1, 2005 as required by the Federal Safe Drinking Water Act.
- A continued savings was realized as a result making our own dilutions of Glacial Acetic acid for the use in the on-line chlorine analyzers.
- The WQA successfully completed the annual Bacteriological Performance Evaluation as required by the Microbiological Laboratory's Certification to perform testing for the presence of Coliform and E. Coli bacteria.

DISTRIBUTION DIVISION



The Distribution Division is assigned responsibility for operations, maintenance and repair of over 250 miles of distribution system piping and appurtenances including approximately 1,690 fire hydrants and 3,540 valves. This Division is directly responsible for the installation of water meters, meter readings and maintenance of associated records for approximately 18,000 domestic services, 2,450 commercial services, and 435 institutional services and connections. They provide all service taps, hydrant flow tests, service application review and approval in accordance with the City Codified Ordinances and the Rules and Regulations of The Harrisburg Authority, and maintain records as required. They perform all Pennsylvania One-Call System utility locations for water and sewer mains. The Division consists of a Distribution Superintendent, (7) Service Persons, (2) Water Meter Readers, (2) Laborers, and (1) Secretary.

WATER

Other Accomplishments in 2005:

- Assisted the City Engineering Department with the Capital Heights II project.
- Completed the annual employee Right-to-Know and Confined Space training.
- Attended the PA One-Call System Exposition.
- Responded to 10,033 service calls.
- Repaired 15 main breaks.
- Removed 3 water taps for the Demolition project.
- Completed 25 final street restorations.
- Excavated 120 curb boxes for delinquent termination.
- Completed 7297 water and sewer locates for the PA One-Call System.
- Assisted Newport and Steelton Borough's with Distribution System Leak Detection as requested.
- Assisted other City Bureau's and Department's as requested.
- Repaired or Replaced 134 Fire Hydrants.

BUREAU OF WATER

2006

GOALS AND OBJECTIVES

DEHART DAM

- Address comments in the PA Department of Environmental Protection's Annual Dam Inspection Report.
- With the approval of The Harrisburg Authority, plan a timber harvest and a pulpwood harvest sale in the areas indicated in the Forest Stewardship Plan.
- Continue to monitor Clark Creek and the watershed to determine sources of nutrient and bacterial input.
- Hire an independent laboratory to analyze algae samples of DeHart Reservoir on a quarterly basis.
- Remove dead trees from the shoreline of the reservoir.
- Continue to clean vegetation from the mountain line access road.
- Have access roads throughout the facility repaved.
- Continue to implement chlorophyll A sampling on the reservoir.
- Continue to assist other departments and divisions as required.

OPERATIONS/MAINTENANCE DIVISION

- Continue to process data collection and reporting with the use of a computer database to ensure that all Federal, State and Local water quality standards are met.
- Continue to monitor utility and chemical expenses in order to reduce the operational costs associated with all Bureau facilities.
- Continue the preventive maintenance program.
- Continue to provide the necessary submittals to continue to receive the Partnership For Safe Water' Directors Award.
- Continue to work in conjunction with the Pa-AWWA in conducting/facilitating various training workshops and seminars throughout the year.
- Complete repairs on the Hydro-electric turbine and generator and place back into service.

WATER QUALITY DIVISION

- The Microbiological Laboratory will continue to be operated and maintained in accordance with the standards necessary to perform quality bacteriological testing and to maintain certification.
- Continue the in-house program of analyzing chemical parameter unknowns by operations staff to assure precision and accuracy of equipment, methods, and operator's technique.

WATER

- Evaluate methodology and equipment of chemical testing procedures to ensure accurate results.
- Implement and expand the QA/QC protocols within the operations lab and in the field during sampling.
- The WQA will continue responding to consumer complaints in an effort to promote confidence in our drinking water.
- The WQA will update the SOP's for all parameters analyzed in the Microbiological and Operations laboratories.

DISTRIBUTION DIVISION

- Attend monthly Bureau Safety Committee and Staff meetings.
- Continue water sales to bulk water haulers.
- Continue system-wide leak detection.
- Continue to work on meter report forms.
- Continue the delinquent shut-off program and to shut-off properties on the vacant coded list in conjunction with the Bureau of Operations & Revenue.
- Continue to repair or replace fire hydrants as required.
- Continue to assist other departments and divisions as required.